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**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F.K. FEDERAL BUILDING, BOSTON, MA 02203**

MEMORANDUM

DATE: July 2, 1991

SUBJ: Bennington Landfill Superfund Site
RI/FS Administrative Consent Order

FROM: Terrence R. Connelly *TR*
Maine & Vermont Superfund Section

Andrew Raubvogel *A.R.*
Office of Regional Counsel

TO: Distribution List

Attached is a copy of the Bennington Landfill Superfund Site RI/FS Administrative Consent Order for your files. The effective date of this order is July 8, 1991.

Distribution:

Julie Belaga, Regional Administrator*
Paul Keough, Regional Deputy Administrator*
Merrill Hohman, Director, Waste Management Division*
Frank Ciavattieri, Chief, ME & VT Waste Management Branch*
Mary Jane O'Donnell, Chief, ME & VT Superfund Section
Bruce Marshall, Chief, Superfund Enforcement Support Section*
Lynn Megargle, Superfund SCAP Coordinator
James Sebastian, Office of Public Affairs*
Michael Ochs, Office of Congressional Affairs
Marianna Dickinson, Regional Hearing Clerk

* Summary Memorandum only

*Signed by Julie:
6/28/91*

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F.K. FEDERAL BUILDING, Boston, MA 02203

MEMORANDUM

DATE:

SUBJ: Bennington Landfill Superfund Site - CERCLA § 122(d)(3)
Administrative Order by Consent for Remedial
Investigation/Feasibility Study

FROM: Merrill S. Hohman, Director
Waste Management Division

TO: Julie Belaga
Regional Administrator

Summary of Action

Attached for your signature is an Administrative Order by Consent for the Remedial Investigation and Feasibility Study (RI/FS) at the Bennington Landfill Superfund Site (Site) in Bennington, Vermont. On March 18, 1991, EPA issued Special Notice letters to twenty-seven potentially responsible parties (PRPs) for this Site. The negotiation period ended on June 20, 1991, and an extension to June 26, 1991 was granted to obtain signatures. Twelve PRPs have agreed to conduct the RI/FS for this Site, to reimburse EPA for all future oversight costs related to the RI/FS, and to reimburse EPA for 80% of approximately \$247,400 in past costs (memorialized in a separate agreement).

Major Issues

The provisions of the Bennington RI/FS Order are consistent with the model order developed for the four RI/FS Special Notice negotiations planned for this fiscal year. Moreover, the Bennington Order is comparable to negotiated agreements reached at three sites last year (Shpack, Tansitor, and Parker).

A controversial issue during the negotiations centered on the level of oversight cost documentation EPA was to provide to the PRPs to support the Agency's annual oversight bill. Oversight cost documentation has been the subject of significant disputes with PRPs at other sites, including Old Southington and Old Springfield. To avoid disputes arising at the time EPA submits its annual bill, the Region has agreed in the Bennington Order to provide additional documentation. Such documentation will include the Scope of Work and Technical Work Plan regarding EPA's oversight contracts, and technical portions of monthly progress reports submitted to EPA by EPA's oversight contractors.

Headquarters Perspective/Involvement

Headquarters consultation and/or concurrence is not required for an RI/FS Consent Order; however, the Office of Enforcement is aware of and supportive of the regional policy requiring PRPs to negotiate both the RI/FS Consent Order and the Cost Recovery Agreement concurrently.

Public Involvement

There has been no public involvement related to this RI/FS Consent Order.

Media-Congressional Involvement

Local newspapers in the Bennington area have regularly contacted EPA to obtain information regarding the RI/FS negotiations. The Office of Public Affairs, the Remedial Project Manager, and the staff attorney have made themselves available to respond to these inquiries as they deemed appropriate. In addition, the Region responded to a telephone inquiry from Senator Leahy's office.

State Coordination

The State of Vermont did not formally participate in the negotiations and is not a signatory to the Order. However, the State's technical concerns were addressed in the RI/FS Statement of Work.

Recommendation

I recommend that EPA accept this RI/FS Order as negotiated. The Order will become effective ten days after your signature.

Contact Persons

Terrence Connelly, Remedial Project Manager, 573-9638
Andrew Raubvogel, Assistant Regional Counsel, 565-3169

AC001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

IN THE MATTER OF:

BENNINGTON LANDFILL SUPERFUND SITE
Bennington, Vermont

U.S. EPA Region I
CERCLA Docket No.
I-91-1093

Banner Publishing Corporation, Town of
Bennington, Bennington Iron Works, Inc.,
Bijur Lubricating Corporation, Chemical
Fabrics Corporation, Courtaulds Structural
Composites, Inc., East Mountain Transport,
Environmental Action, Inc., Eveready Battery
Corporation, G.C.D.C., Inc., Johnson
Controls, Inc., Textron, Inc.,

Respondents

Proceedings relating to a settlement
agreement under Section 122(d)(3) for action
under Section 104(b) of the Comprehensive
Environmental Response, Compensation and
Liability Act, as amended, 42 U.S.C. §§
9604(b), 9622(d)(3)

ADMINISTRATIVE ORDER BY CONSENT
FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

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JURISDICTION

1. This Administrative Order by Consent (Order) is entered into voluntarily by and between the United States Environmental Protection Agency (EPA) and all of the Respondents listed in the caption above (hereinafter "the Settling Parties"). The Order concerns the preparation of, performance of, and reimbursement of oversight costs for the Remedial Investigation and Feasibility Study (RI/FS) for the Superfund Site known as the Bennington Landfill Superfund Site (the Site) in Bennington, Vermont. This Order is issued pursuant to the authority vested in the President of the United States by Sections 104 and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), 42 U.S.C. §§ 9604, 9622(d)(3), which authorize the President to issue an Order setting forth the obligations of the Settling Parties with respect to a settlement agreement for action under Section 104(b) of CERCLA. This authority was delegated to the Administrator of EPA on January 23, 1987, by Executive Order 12580, 52 Fed. Reg. 2926 (January 29, 1987), and further delegated to the Regional Administrator on September 13, 1987, by EPA delegation No. 14-14-C. Under this Order, the Settling Parties agree not to contest the authority or jurisdiction of the Regional Administrator to issue this Order in any subsequent proceeding to enforce the terms of this Order, but expressly reserve their rights to contest the authority or jurisdiction to issue any other or subsequent order.

PARTIES BOUND

2. This Order shall apply to and be binding upon EPA and the Settling Parties, their agents, successors, and assigns, and upon all persons, contractors, and consultants whom the Settling Parties have authorized to act on their behalf to perform the RI/FS. No change or changes in the ownership or corporate status of any of the Settling Parties shall in any way alter the Settling Parties' responsibilities under this Order. Each Settling Party shall provide a copy of this Order to any subsequent owners or successors before ownership rights are transferred. The Settling Parties shall be jointly and severally liable for the performance of the activities specified in this Order and for penalties arising from this Order. The signatories to this Order certify that they are authorized to execute and legally bind the parties they represent.

3. The Settling Parties shall provide a copy of this Order to their contractor ("Contractor") within fourteen (14) days after the effective date of this Order or after the date of such retention, whichever is later. Notwithstanding the terms of any contract, the Settling Parties are responsible for compliance with this Order and for ensuring that their contractors and agents comply with this Order. Any reference herein to the Order shall mean this Order, any appendix thereto including any future modifications as provided by the terms of this Order as may be added hereafter, including any reports, plans, specifications, schedules, and appendices required by this Order which, upon

approval of EPA, shall be part of and be enforceable under this Order.

STATEMENT OF PURPOSE

4. In entering into the Order, the mutual objectives of EPA and the Settling Parties are: (i) to determine by conducting a remedial investigation the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants from the Site; and (ii) to determine and evaluate alternatives for remedial action (if any) by conducting a feasibility study to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants from the Site.

5. The activities conducted under this Order are subject to approval by EPA as set forth in Paragraphs 26 - 28 of this Order and shall provide all necessary information for the Remedial Investigation/Feasibility Study and for a Record of Decision that is consistent with CERCLA §§ 104, 121, and 122, and the National Contingency Plan (NCP), 40 CFR Part 300.

FINDINGS OF FACT

6. The Bennington Landfill Superfund Site (the "Site") is located in Bennington County off of Houghton Lane on East Road in the Town of Bennington, Vermont. The Site, an approximately ten-

acre municipal landfill, is situated on twenty-eight (28) acres north of Houghton Lane, and is bordered by an area of low-density residential development along Houghton Lane to the south, by a rural residential area and apple orchard to the west, by a sand and gravel pit to the north, and by a wetland area to the east where Hewitt Brook originates.

7. The landfill was established pursuant to the Town of Bennington's obligation to provide disposal facilities under Title 24 § 2202 of the Vermont Statutes Annotated, and began operation in June 1969, receiving residential, commercial and industrial wastes. The Town of Bennington leased the Site property for use as a landfill until 1985, at which time it purchased the Site property from Alden Harbour. In April 1987, the landfill closed, and is presently utilized only for transfer, recycling, and sorting operations.

8. Throughout the entire period 1969-1987, residential, commercial and industrial liquid and solid wastes were disposed of in the landfill. During the period 1969 to 1975, liquid wastes from several Bennington-area industries were disposed of in an unlined lagoon at the Site. The Town of Bennington discontinued use of the lagoon in 1975, due to concerns raised by the State of Vermont regarding the threat to drinking water supplies posed by contamination migrating from the Site. After attempts to solidify the liquids within the lagoon failed, it was covered with landfill material.

9. A buried drainage system constructed in 1976 was designed to lower the groundwater level under the landfill in order to control the migration of contaminants from the Site. This drainage system discharges through a culvert into an unlined ponded area on the eastern side of the Site. In August 1986, the Vermont Agency of Environmental Conservation (Vermont AEC) collected groundwater samples from monitoring wells located throughout the Site and water samples from the culvert. Analysis of those samples revealed the presence of PCBs, lead, arsenic, benzene, and ethylbenzene, as well as other contaminants. The concentration of several contaminants exceeded Maximum Contaminant Levels established under the federal Safe Drinking Water Act.

10. In May 1989, EPA personnel conducted a site assessment of the Site, during which they collected soil and water samples. Analyses of those samples revealed many of the same contaminants as those detected by the Vermont AEC; moreover, the concentration of contaminants were comparable to the Vermont AEC findings.

11. Potential receptors for the contaminants migrating from the Site include: wetlands, streams, and drinking water supplies.

12. Pursuant to Section 105(8)(b) of CERCLA, 42 U.S.C. § 9605(8)(b), the Site was proposed for inclusion on the National Priorities List (NPL) published by the Administrator of EPA in the Federal Register on June 24, 1988 (53 Fed. Reg. 23,978). The

Site was finally listed on the NPL on March 31, 1989 (NPL final rule update # 5, 54 Fed. Reg. 13,295).

13. By letter dated March 18, 1991, EPA issued a Notice of Potential Liability and Special Notice pursuant to Section 122 of CERCLA to the following twenty-seven (27) parties on the bases set out below:

a. The Town of Bennington is an incorporated political division in the State of Vermont. The Town of Bennington is linked to the Site by reason of its present ownership and operation of the Site and its operation of the Site at a time when hazardous substances were disposed of at the Site.

b. In 1970, Thressia Harbour conveyed the Site property to Alden Harbour and Marion Harbour by warranty deed, while retaining a life estate in the property for herself. Between 1969 and 1979, the Town of Bennington leased the Site from Thressia Harbour. In 1979, a lease extension was entered into between the Town of Bennington and Thressia Harbour, Alden Harbour, and Marion Harbour. Alden Harbour became the sole owner of the Site in 1982 upon the death of Marion Harbour. Alden Harbour, now deceased, is thus linked to the Site by reason of his ownership of the Site at a time when hazardous substances were disposed of at the Site.

c. ADD, Inc., Arken Industries, Inc., Banner Publishing Corporation, Ben-Mont Corporation, Bennington Iron Works, Inc., GC/DC, Inc. (formerly Bennington Iron Works, Inc.), Bennington Potters, Inc., Bijur Lubricating Corporation, Catamount Dyers, Inc., Chemical Fabrics Corporation, Courtaulds

Structural Composites, Inc., Eveready Battery Company, Inc., Jard Company, Johnson Controls, Inc., Lauzon Machine and Engineering, Inc., Monument Plastics Machining, Inc., Textron, Inc., and Vermont Tissue Paper Corporation are linked to the Site by reason of their having arranged, or their having a corporate relationship with a person that arranged, for the disposal of hazardous substances at the Site.

d. Harry F. Andrews, Bernard Bourgeois, Church Septic Tank Service, East Mountain Transport, Environmental Action Waste, Inc., Jack Sweet, and Tom Sweet are linked to the Site by reason of their having accepted, or their having a corporate relationship with a person that accepted, hazardous substances for transport to the Site.

EPA'S DETERMINATIONS

14. On the basis of the Findings of Fact, EPA has determined that:

- a. Each Respondent is a "person" as that term is defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).
- b. Each Respondent is a liable party within the meaning of Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), and a "potentially responsible party" within the meaning of Section 122(d)(3) of CERCLA, 42 U.S.C. § 9622(d)(3).
- c. The Site is a "facility" as that term is defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

- d. Each substance listed in Paragraph 9 above is a "hazardous substance" as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).
- e. The past, present or potential future migration of hazardous substances at or from the Site constitutes a "release" or substantial threat of a release into the "environment" within the meaning of Sections 101(8), (22) and 104(a) of CERCLA, 42 U.S.C. §§ 9601(8), (22) and 9604(a).
- f. It is necessary, in order to protect the public health and welfare and the environment, to conduct an RI/FS to determine the full nature and extent of contamination that exists at or near the Site and to determine what remedial actions are necessary to be carried out under Sections 104 and 122 of CERCLA or secured through enforcement action under Section 106 of CERCLA.
- g. The RI/FS will be done properly and promptly by the Settling Parties, in accordance with Sections 104(a)(1) and 122(a) of CERCLA, provided that the Settling Parties perform all actions in accordance with the terms of this Order and Attachment A (the Statement of Work) and any modifications thereto.
- h. The actions called for in this Order will be consistent with the NCP to the extent that the NCP is consistent with CERCLA, provided that the Settling Parties perform all such actions in accordance with the terms of this

Order and the Statement of Work and any modifications thereto.

- i. The Settling Parties are qualified to conduct the RI/FS, in accordance with Section 104(a)(1) of CERCLA, if the Settling Parties engage a qualified contractor pursuant to Paragraph 18 of this Order.
- j. EPA will arrange for the oversight and review of the RI/FS by qualified EPA personnel and qualified contractors, in accordance with Section 104(a)(1) of CERCLA.

ORDER

BASED ON THE FOREGOING FINDINGS OF FACT AND EPA DETERMINATIONS, EPA AND THE SETTLING PARTIES HAVE BY AGREE, AND EPA HEREBY ORDERS THAT:

Implementation

15. Subject to EPA's rights to implement its own RI/FS pursuant to Paragraphs 27 and 68, the Settling Parties shall perform the RI/FS in accordance with Attachment A (the Statement of Work or "SOW"), and with any modifications made or required by EPA pursuant to the terms of the Order to bring documents and/or deliverables prepared by the Settling Parties under this Order into conformance with the requirements of CERCLA, the SOW, modifications to the SOW, and any Work Plans prepared under this Order or the SOW, which are incorporated by reference into this Order. Upon the effective date of this Order, Settling Parties

shall commence implementation of this Order and of work required by the SOW and shall conclude implementation of such in accordance with the terms and schedules set forth in this Order, the SOW, and any approved Work Plans. The activities conducted pursuant to this Order are subject to approval by EPA pursuant to the terms of the Order. All such activities shall be deemed consistent with the NCP to the extent that the NCP is consistent with CERCLA. To the extent consistent with the NCP, such activities shall also be consistent with guidance documents referenced in the SOW.

16. If any inconsistencies between any of the above-referenced laws, regulations or guidance exist, CERCLA shall govern. If any of the above-referenced laws, regulations or guidance are amended prior to the signing of a Record of Decision for final remedial action at the Site, pursuant to the Order EPA may modify or require modification to the SOW and to any approved Work Plan or other deliverable accordingly. EPA may also, pursuant to the Order, require the Settling Parties to develop a new Work Plan or other deliverable accordingly, and the Settling Parties shall conduct all activities required by the new or modified Work Plan or other deliverable.

17. EPA may determine pursuant to the Order that additional tasks, including remedial investigatory work and/or engineering evaluations other than those specified in the SOW, are part of the RI/FS. The Settling Parties shall implement any additional tasks identified pursuant to the Order which are consistent with the NCP, to the extent the NCP is consistent with CERCLA, and

which EPA determines are necessary as part of performing the activities required under this Order. The additional tasks shall be completed in accordance with the standards, specifications, and schedule determined or approved by EPA.

Engagement of the Settling Parties' Contractor;

Designation of the Settling Parties' Project Coordinator

18. Within forty-five (45) days after the effective date of this Order, the Settling Parties shall engage a qualified contractor to perform the technical activities required under this Order. All work performed by said contractor pursuant to the Order shall be under the direction and supervision of a qualified individual with a minimum of five (5) years of direct experience in hazardous waste site investigation and cleanup. The contractor shall employ such professional staff sufficient to perform the RI/FS prior to engagement by the Settling Parties.

19. The Settling Parties shall provide written notice to EPA within seven (7) days after engaging a contractor. The notice shall include a statement that a contract of engagement has been entered into between the Settling Parties and the contractor, a statement of qualifications, and identification of project personnel including the supervising individual specified in the preceding Paragraph. The Settling Parties shall notify EPA regarding the identity and qualifications of all subcontractors as soon as each subcontractor is engaged or at least fourteen (14) days prior to the subcontractor's commencement of site work, whichever occurs first. EPA shall

have the right to disapprove, based on professional qualifications, conflicts of interest, and/or deficiencies in previous similar work, any contractor or subcontractor or other person engaged directly or indirectly by the Settling Parties to conduct work activities under this Order. Any disapproval shall be in writing within twenty-one (21) days of the Settling Parties' notice, and shall state the basis for the disapproval. In the event of disapproval, Settling Parties shall within forty-five (45) days retain an alternative contractor.

20. Within fourteen (14) days after the effective date of this Order, the Settling Parties shall designate a Project Coordinator who shall be responsible for the administration of the SOW called for by this Order and shall submit the respective Coordinator's name, address, and telephone number to EPA. Any subsequent change in the Settling Parties' Project Coordinator shall be accomplished by notifying EPA in writing at least fourteen (14) days prior to the change. The Settling Parties shall similarly designate an individual who shall be responsible for the administration of all other activities called for by the Order.

Designation of Government Coordinators

21. EPA will designate a Remedial Project Manager (RPM) for administration of its responsibilities, for oversight of the day-to-day activities conducted under the Order, and for receipt of all written matter required by the Order. In addition, EPA will designate a Geographic Section Chief (GSC) who shall have

ultimate responsibility for the approval/disapproval findings and comments on major project deliverables pursuant to Paragraph 27 of this Order. EPA will submit the name, address, and telephone number of the RPM and GSC to the Settling Parties within fourteen (14) days after the effective date of this Order. EPA shall notify the Settling Parties in advance and in writing of any subsequent changes in the RPM or GSC. Settling Parties shall not be deemed in violation of this Order to the extent any violation regarding the timeliness of a submission is caused by EPA's failure to identify its RPM or GSC or to notify Settling Parties of any changes of RPM or GSC; provided, however, that this Paragraph shall not affect in any way the Settling Parties' obligation to submit in a timely manner any submissions.

22. The RPM shall have the authority vested in the On-Scene Coordinator and the Remedial Project Manager by the National Contingency Plan, as amended, 40 C.F.R. Part 300. This includes the authority to halt, conduct, or direct any tasks required by this Order and/or any response action, or portions thereof, when conditions present an imminent and substantial endangerment to public health or welfare or the environment. Except as specifically provided under this Order or as directed in writing by the RPM, the presence of the RPM on the Site is not required for the Settling Parties to undertake actions at the Site.

Communications

23. Communications between the Settling Parties and EPA, and all documents including reports, approvals, disapprovals,

written notice, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order, shall be directed through the Settling Parties' Project Coordinator(s) and the RPM. For each deliverable document required under the SOW to be provided to EPA, one (1) camera ready original shall be submitted together with such copies as required by the RPM. All such deliverables submitted pursuant to this Order shall be sent by certified mail, return receipt requested, or by courier, to the RPM at the following address or to such other address as EPA hereafter may designate in writing:

Terrence Connelly
U.S. Environmental Protection Agency
Waste Management Division - HPS-CAN1
JFK Federal Building
Boston, MA 02203

All other documents of fewer than ten (10) pages in length may be submitted by facsimile transmission.

Observation of the Settling Parties' RI/FS Activities

24. The Settling Parties shall allow EPA's RPM, and EPA employees, agents, consultants, contractors, and authorized representatives identified, at a minimum, by organizational affiliation in advance by the RPM or GSC, to observe the Settling Parties' work at the Site in implementing the activities pursuant to this Order. The Settling Parties shall permit such persons:

- (i) to inspect and copy all records, documents, files or other writings which relate to technical data generated in performing the RI/FS or which would be available to EPA pursuant to its

authority under Section 104(e)(2) of CERCLA; (ii) to record all RI/FS field activities by means of photographic or other recording equipment; (iii) to enter and to freely move about all property on or about the Site under the Settling Parties' control and in compliance with the Health and Safety Plan for the Site; (iv) to conduct such tests as EPA may deem necessary; and (v) to verify the data submitted to EPA by the Settling Parties. In conducting such activities, EPA shall use reasonable efforts to avoid interfering materially with Settling Parties' reasonable performance of RI/FS work at the Site.

Necessity of Approval

25. No advice, guidance, suggestions or comments by EPA regarding reports, plans, specifications, schedules, or any other writing submitted by the Settling Parties shall be construed as relieving the Settling Parties of their obligations to obtain such reviews and approvals as may be required by this Order.

Submissions Requiring EPA Approval

26. All plans, deliverables, and reports identified in the Statement of Work or the EPA-approved Work Plan for submittal to EPA shall be so delivered to EPA in accordance with the schedule set forth in the Statement of Work or otherwise established under this Order. Prior to receipt of EPA approval, any submittal provided to EPA for approval shall be marked "Draft" on each page and shall include, in a prominent location in the document, the following disclaimer: "Disclaimer: This document is a DRAFT

document prepared by the Settling Parties pursuant to a government administrative order which has not received final acceptance from the U.S. Environmental Protection Agency. The opinions, findings, and conclusions expressed are those of the authors and not those of the U.S. Environmental Protection Agency." EPA shall provide reasonable notice to the Settling Parties in advance of the release of draft documents to third parties, except in the case of a release to EPA's contractors or to other governmental agencies.

27. EPA will review the deliverables required by this Order to determine whether they are consistent with the requirements of the SOW and the Order and will respond to the Settling Parties with one of four findings:

- a. Approval -- means that the Settling Parties shall proceed with the next scheduled RI/FS activity consistent with the deliverable.
- b. Approval with Conditions -- means that the Settling Parties shall proceed with the next scheduled RI/FS activity, subject to certain required modifications or conditions set forth in the EPA comments. EPA will specify a schedule for resubmitting the deliverable with the required modifications or conditions as set forth in the EPA comments ("New Specified Time"), taking into account the time required for preparation of the original deliverable, the extent of the additions or revisions necessary, and the necessity for carrying out any further field work in connection with

the additions or revisions. If the Settling Parties fail to resubmit the deliverable within the New Specified Time, EPA may order the Settling Parties to cease work on the RI/FS activity until such time as the modification is made or the condition is met.

- c. Disapproval with Modification Required -- means that the Settling Parties shall not proceed until they modify the deliverable to correct the deficiencies delineated in EPA's comments, and resubmit the deliverable for further EPA review. Modifications may be required in any originally-submitted deliverable, any portions of a deliverable, or any deliverable or portion of deliverable resubmitted to EPA. EPA will specify a schedule for resubmitting deliverables requiring modifications, taking into account the time required for preparation of the original deliverable, the extent of the additions or revisions necessary, and the necessity for carrying out any further field work in connection with the additions or revisions.
- d. Disapproval with EPA modification -- means that EPA has determined that it will modify the submission to cure any deficiencies and/or undertake the RI/FS or any portion of the RI/FS itself. EPA will provide notice prior to undertaking such modification itself. Such notice shall include a statement of reasons for the determination and a detailed explanation why Settling Parties are not permitted to cure any defects. The

Settling Parties agree to reimburse EPA pursuant to the terms of the Order for the costs of such modification or work as an oversight cost.

A finding of Approval or Approval with Conditions shall not be construed to mean that EPA concurs with all conclusions, methods, or statements in the deliverables. If a deliverable is otherwise timely submitted, neither an approval with conditions, a disapproval with modification required, nor a disapproval with EPA modification shall be deemed to be a violation of this Order for the purposes of Paragraphs 57 to 60 of this Order; provided however, that if upon resubmission the deliverable is not approved by EPA, the Settling Parties shall be deemed in violation of this Order as of the date of the resubmission.

8. Any reports, plans, specifications, schedules, and attachments or other deliverables required by this Order shall, upon approval by the GSC, be part of and be enforceable under this Order. Any delay or noncompliance with such reports, plans, specifications, schedules, and attachments or other deliverables shall be considered delay or noncompliance with requirements of this Order and may subject the Settling Parties to penalties pursuant to Paragraphs 57 and/or 58.

Monthly Progress Reports and Meetings

29. The Settling Parties shall provide monthly written progress reports (Progress Reports) to EPA. At a minimum, these Progress Reports shall describe the progress made during the preceding month by: (1) describing the actions which have been

taken toward achieving compliance with this Order; (2) summarizing all the results of sampling and tests and all other data generated by the Settling Parties' Contractor in the course of implementing this Order; (3) summarizing all payments to the Contractor to date by the Settling Parties in performing the approved Work Plan under this Order (only provide on a semi-annual basis); and (4) describing actions, data, plans, and procedures which are scheduled for the next month. The full results and any underlying documentation shall be furnished to EPA upon request. Progress Reports shall be submitted to the RPM by the fifteenth (15th) day of each month following the last day of the reporting period, beginning after the effective date of this Order. Meetings between the RPM, the Project Coordinator, and the Contractor shall be held as the RPM may require upon reasonable notice to the Project Coordinator. The Settling Parties and the Contractor engaged to perform work under this Order shall also meet with and make formal presentations to EPA at the completion of major components of the RI/FS, as specified by the RPM.

Quality Assurance/Quality Control; Health and Safety Compliance

30. While conducting all sample collection and analysis activities required by this Order, the Settling Parties shall use quality assurance, quality control, and chain of custody procedures in accordance with the SOW, and with EPA's: "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plan" (December 1980, QAMS-005/80); "Data Quality

Objective Guidance" (EPA/540/G87/003 and 004); "EPA NEIC Policies and Procedures Manual" (revised November 1984, EPA 330/9-78-001-R); and subsequent amendments to such guidelines. To provide quality assurance and maintain quality control, the Settling Parties shall submit a Quality Assurance Project Plan ("QAPP") to EPA consistent with the requirements, guidance, and schedule contained in the Statement of Work. Upon EPA approval pursuant to Paragraph 27, the Settling Parties shall comply with the QAPP.

31. The Settling Parties also shall prepare a Health and Safety Plan as required and described in the Statement of Work. The accepted Health and Safety Plan shall be consistent with and implement standards promulgated by the Secretary of Labor pursuant to CERCLA and Section 6 of the Occupational Safety and Health Act of 1970.

Split Sampling

32. At the request of EPA, the Settling Parties shall provide split or duplicate samples to EPA and/or its authorized representatives of any samples collected by the Settling Parties pursuant to the implementation of this Order. Similarly, the Settling Parties shall allow such split or duplicate samples to be taken by EPA and/or its authorized representatives. The Settling Parties shall notify EPA not less than thirty (30) days in advance of any anticipated sample collection activity. Not less than fourteen (14) days in advance of sample collection, or such lesser time as approved by the RPM, the Settling Parties shall notify EPA of the sampling date, sampling media, and the

number of samples from each media, unless EPA specifies a different time period. EPA or its contractor will provide notice prior to collecting split or duplicate samples. If EPA or its contractors collect samples without affording Settling Parties an opportunity to take split or duplicate samples, EPA shall provide the Settling Parties' Project Coordinator with the validated analytical results from the samples within thirty (30) days after they become available. In conducting sampling activities, EPA shall use reasonable efforts to avoid interfering materially with Settling Parties' reasonable performance of RI/FS work at the Site.

Record Preservation

33. During the pendency of this Order and for a period of not less than six (6) years after EPA certification pursuant to Paragraph 61 of this Order, the Settling Parties shall preserve all records, documents, files or other writings which relate to technical data generated in performing the RI/FS or which would be available to EPA pursuant to its authority under Section 104(e)(2) of CERCLA, notwithstanding any document retention policy to the contrary. At the conclusion of this document retention period, the Settling Parties shall notify EPA at least ninety (90) days prior to the destruction of any such records or documents. The Settling Parties shall send such notice, accompanied by a copy of this Order, to:

Office of Regional Counsel
U.S. Environmental Protection Agency
JFK Federal Building
Boston, MA 02203
Attention: Bennington Landfill Superfund Site

Upon request by EPA, Settling Parties shall deliver to EPA any or all such records and documents or copies of any such records and documents. In the alternative, the Settling Parties may, at their option, provide such notice to EPA at any time after EPA Certification pursuant to Paragraph 61 of this Order; provided, however, that if the Settling Parties exercise such option, they shall deliver to EPA appropriately indexed microfilms or microfiches of all such records and documents.

Confidentiality Claims

34. The Settling Parties may assert a confidentiality claim, if appropriate, covering all or part of the information requested by this Order pursuant to 40 C.F.R. § 2.203(b). Such an assertion shall be adequately substantiated when it is made. Neither analytical data nor any information specified in Section 104(e)(7)(F) of CERCLA, shall be claimed as confidential by the Settling Parties. Information determined to be confidential by EPA shall be afforded the protection specified by 40 C.F.R. Part 2, Subpart B, and Section 104(e)(7) of CERCLA. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA without further notice to the Settling Parties.

Site Access

35. All Settling Parties that own, occupy, or control property at the Site, or property adjacent to the Site to which access is required in order to properly carry out the terms of this Order, shall grant access to the other Settling Parties, the Settling Parties' authorized representatives, and EPA and their officers, employees, agents, contractors, consultants, and other authorized representatives for purposes of implementing and monitoring work to be performed under this Order.

36. To the extent the Settling Parties determine that access to property at the Site, or property other than the Site, is required for the proper and complete implementation of this Order, the Settling Parties' sole obligation under this Paragraph shall be to use their best efforts to obtain agreements for access to such property within twenty-one (21) days after approval of the Work Plan or within thirty (30) days of discovery of the need for such agreement(s), whichever date is later. The Settling Parties' determination of the need for access, the proper means for obtaining access, and the Settling Parties' efforts to obtain access, shall be subject to the approval procedures set forth in Paragraph 27.

37. Such agreements to allow access obtained pursuant to the preceding paragraph shall, at a minimum, allow the Settling Parties, the Settling Parties' authorized representatives, and EPA and their officers, employees, agents, contractors, consultants, and other authorized representatives to enter freely and move about the Site and such properties in compliance with a

Health and Safety Plan at all reasonable times in order to implement and oversee the implementation of work under this Order. In the event that the Settling Parties fail to obtain any necessary access agreements within the time period specified above, the Settling Parties shall notify EPA in writing within five (5) business days thereafter. Such notification shall include a description of the efforts made by the Settling Parties to obtain the necessary access and the reason for their lack of success. The Settling Parties shall reimburse EPA, in accordance with Paragraph 48, for all costs EPA may incur in exercising its statutory authority to gain access to the Site.

Endangerment and Emergency Response

38. Upon the occurrence of any event during the RI/F that causes a release or substantial threat of release from the Site into the environment of any pollutant, contaminant or hazardous substance which may present an imminent and substantial danger to the public health or welfare or the environment, the Settling Parties shall immediately take action consistent with the NCP to prevent, abate or minimize such release or endangerment. The Settling Parties shall also orally notify the RPM within twenty-four (24) hours, or in the event of his unavailability, shall notify within the same period the Regional Duty Officer of the Emergency Planning and Response Branch, EPA Region I, telephone (617) 223-7265. The Settling Parties shall act in accordance with all applicable provisions of the Health and Safety Plan prepared pursuant to the Statement of Work.

39. The Settling Parties shall submit a written report to EPA within five (5) days after each such event setting forth:

(i) the events that have occurred; (ii) the measures taken and to be taken to mitigate any harm caused or threatened by the event; and (iii) the measures taken and to be taken to prevent the reoccurrence of such an event.

40. Regardless of whether or not such a report is made to EPA, if EPA determines that activities in compliance or noncompliance with this Order have caused a release or substantial threat of release from the Site into the environment of any pollutant, contaminant or hazardous substance which may present an imminent and substantial endangerment to the public health or welfare or to the environment, EPA may, in addition to taking any action pursuant to its reservation of rights in Paragraph 68: (i) order the Settling Parties to stop further implementation of this Order for such period of time as may be needed to abate such release or threat; and/or (ii) undertake any action not inconsistent with the NCP.

Use of Resource Conservation and Recovery Act Facilities

41. The Settling Parties shall comply with all applicable requirements of the Resource Conservation and Recovery Act (RCRA), as amended, including fulfilling the standards applicable to generators of hazardous waste found at 40 C.F.R. Part 262. In particular, this responsibility includes using and signing manifest forms for hazardous waste leaving the Site. Further, the Settling Parties must designate, in a written report to EPA,

any facilities that the Settling Parties propose to use for such off-site transfer, storage, treatment, or disposal, and EPA must approve the use of such proposed facilities prior to the shipment of hazardous substances from the Site. In the event EPA disapproves such use, EPA will provide notice, such notice to include a statement of reasons for the determination and a detailed explanation why the Settling Parties may not use such proposed facilities.

Other Laws

42. All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable or relevant and appropriate state and federal laws and regulations (ARARs), including CERCLA; laws relating to occupational safety and health; and other federal environmental laws in effect at the time of the signing of this Order. Other agencies, including the Occupational Safety and Health Administration (OSHA) and the Fish and Wildlife Service (F&WS), may be called upon to review the conduct of work under this Order. In the event that two (2) or more federal laws or regulations are applicable, the more stringent shall apply; provided, however, that this provision shall not limit EPA's authority under Section 121(d) of CERCLA.

Public Review of RI/FS Report

43. When EPA determines that the RI/FS required under this Order is acceptable for public review, the RI/FS shall be made

available by EPA for public comment for a period of not less than thirty (30) days. The dates and length of the public comment period shall be established by EPA. Following the public review and comment period, EPA may refer the FS Report back to the Settling Parties for revision pursuant to public comments and EPA comments pursuant to a schedule, taking into account the time required for preparation of the original FS report, the extent of the revisions necessary, and the necessity for gathering any additional data in connection with the revisions. In addition, the Settling Parties shall provide information for the Responsiveness Summary as requested by EPA pursuant to all applicable EPA guidance documents. At the request of EPA, the Settling Parties shall prepare all portions of a Draft Responsiveness Summary specified by EPA pursuant to a schedule, taking into account the volume and nature of the comments which must be addressed in the Draft Responsiveness Summary. EPA will prepare the final Responsiveness Summary for the RI/FS.

Community Relations

44. EPA shall be responsible for preparing a Community Relations Plan and conducting a community relations program. The Settling Parties and the Contractor engaged to conduct the RI/FS under this Order shall, consistent with the Community Relations Plan: (i) attend and participate in public meetings regarding the Site, to the extent specified by the RPM; (ii) prepare fact sheets concerning the Site and activities conducted under this Order for submission to the RPM; and (iii) provide timely and

appropriate responses to inquiries from the public at the request of the RPM.

Financial Assurance; Insurance

45. Within thirty (30) days after the effective date of this Order, the Settling Parties shall collectively demonstrate to EPA that they have sufficient financial resources to fund the estimated costs of work to be performed by the Settling Parties under this Order. For each such Settling Party, such assurance shall be provided in the form of either the most recent certified financial statement available or federal income tax returns for the three (3) most recent years.

46. At least seven (7) days prior to commencing any on-site work under this Order, the Settling Parties shall secure, and shall maintain for the duration of this Order, comprehensive general liability and automobile insurance with limits of three million dollars (\$3,000,000), combined single limit. The United States shall be named as an insured for all such insurance policies. Within the same time period, the Settling Parties shall provide EPA with certificates of such insurance and a copy of each insurance policy. If the Settling Parties demonstrate to EPA that any contractor or subcontractor maintains insurance equivalent to that described above or insurance covering the same risks but in a lesser amount, then the Settling Parties need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

47. For the duration of this Order, the Settling Parties shall satisfy, or shall ensure that their contractors satisfy, all applicable laws and regulations regarding worker's compensation insurance for all persons performing the work on behalf of the Settling Parties in furtherance of this Order.

Reimbursement of EPA Response and Oversight Costs

48. The Settling Parties shall reimburse the Hazardous Substances Superfund for all response costs, including oversight costs and interest, incurred after the effective date of this Order by the United States in connection with the RI/FS and this Order, including without limitation costs incurred by EPA under or in connection with a contract or arrangement between EPA and a qualified person to assist EPA in overseeing and reviewing the conduct of activities required under this Order. Reimbursable response costs shall include all direct costs related to the RI/FS and this Order and all indirect costs calculated in accordance with EPA policy, including without limitation: time and travel costs of EPA personnel regarding RI/FS activities (including access and community relations); contractor costs; costs under a cooperative agreement; costs related to discussing the interpretation of Order provisions or reviewing any report delivered pursuant to this Order; costs related to resolving disputes which arise under this Order; the costs of doing and/or redoing any of the Settling Parties' obligations under this Order; EPA, contractor, and cooperative agreement costs related to the preparation of a Baseline Risk Assessment; and any

interest that accrues from the date on which payment becomes due pursuant to Paragraph 49.

49. On no less than an annual basis, EPA will submit to the Settling Parties a bill for response costs incurred by EPA with respect to the RI/FS and this Order. Such bill will consist of the following: (1) a line-item summary of costs incurred during the preceding year, including a breakdown of costs by category (including without limitation, payroll, travel, indirect costs and contracts); (2) a brief narrative summarizing the oversight activities performed by EPA and EPA's contractors during the billing period; and (3) technical portions of monthly progress reports submitted to EPA by EPA's oversight contractors that will have been redacted to remove confidential business information as defined by 40 C.F.R. Part 2, Subpart B, and enforcement confidential information as defined pursuant to the Freedom of Information Act, 5 U.S.C. §552. The Settling Parties shall, within forty-five (45) days after receipt of each annual bill, remit a certified check payable to the Hazardous Substances Superfund for the amount of such bill. The Settling Parties shall include the name of the Site, the Site identification number, and the docket number for this Order on the check and mail the check with a cover letter to:

U.S. Environmental Protection Agency
Region I
Attn: Superfund Accounting
P.O. Box 360197 M
Pittsburgh, PA 15251

A copy of the transmittal letter and the check shall be provided simultaneously to the EPA Remedial Project Manager.

50. EPA will provide to the Settling Parties copies of the Scope of Work and Technical Work Plan regarding EPA's oversight contract(s) within thirty (30) days after such documents are finalized. EPA will further provide, on a monthly basis, technical portions of monthly progress reports and cost summaries submitted to EPA by EPA's oversight contractors that will have been redacted to remove confidential business information and enforcement confidential information.

51. If the Settling Parties dispute a bill or any portion of a bill submitted by EPA, the Settling Parties may initiate dispute resolution pursuant to the procedures of Paragraph 54; provided, however, that the Settling Parties notify EPA in writing within fourteen (14) days after receipt of the disputed bill and that the Settling Parties pay all undisputed portions of the bill in accordance with the provisions of this reimbursement section. If EPA determines, in its sole discretion, that the Settling Parties acted in good faith in invoking dispute resolution concerning response or oversight costs billed by EPA, the time for payment of the disputed portion of the bill will be extended not to exceed the time taken to resolve the dispute pursuant to the procedures and deadlines of Paragraphs 54 - 56; provided, however, that interest shall accrue on such disputed costs as if no extension of the time for repayment had been granted. In all other instances where the Settling Parties dispute an EPA bill for response costs, the time for payment of the disputed portion shall remain the original payment due date, interest shall accrue on any unpaid portion of the bill from the

original payment due date, and EPA may seek stipulated penalties or otherwise act to enforce the Settling Parties' compliance with this section and the Order. If the Settling Parties fail to raise a dispute within fourteen (14) days of their receipt of the bill, the Settling Parties remain obligated for payment of the entire amount of the bill on the original payment due date, interest shall accrue on any unpaid portion of the bill from the original payment due date, and EPA may seek stipulated penalties or otherwise act to enforce the Settling Parties' compliance with this section and the Order.

Force Majeure

52. With respect to the Settling Parties' compliance with any interim or final time deadline set forth in this Order, no stipulated penalties or other sanctions will be imposed for delay solely caused by the following which could not have been overcome by the Settling Parties' due diligence: (i) an act of God; (ii) any delay caused by the public review and comment process as provided in the Work Plan and this Order; (iii) any other cause beyond the control of the Settling Parties; provided, however, that increases in the cost of performance of the RI/FS shall not excuse such performance nor affect the applicability of the penalty provisions or other sanctions which are provided for under this Order. Such penalties and sanctions shall be avoided only if, and only to the extent that, delays solely caused by conditions specified in (i) through (iii) above materially interfered with or prevented the Settling Parties' execution of

their responsibilities during the period of such delay. The Settling Parties further agree to use their best efforts to minimize any delay which may result. The Settling Parties acknowledge that they will have the burden of justifying excuses for delay in performance under this Paragraph.

53. The Settling Parties shall orally notify the EPA RPM within forty-eight (48) hours in the event that circumstances occur which the Settling Parties assert should trigger the excuse provisions of the preceding Paragraph, and shall identify with specificity the cause of such delay and the estimated duration of such delay. Within five (5) days after the Settling Parties first become aware of such circumstances, the Settling Parties shall supply to EPA in writing an explanation of the cause(s) of any actual or expected delay or noncompliance, the anticipated duration of any delay, the measures taken and to be taken by the Settling Parties to prevent or minimize the delay or correct the noncompliance, and the timetable for implementation of such measures. Failure to notify EPA shall result in a waiver of the Settling Parties' right to assert that the delay should be excused under the terms of this section.

Dispute Resolution

54. If the Settling Parties object to any EPA notice of disapproval or decision made pursuant to this Order, including any decision which has resulted in the assessment of stipulated penalties, the Settling Parties shall notify EPA in writing of their objections within ten (10) working days of receipt of the

notice. An EPA Region I official employed at a management level higher than Geographic Section Chief shall be assigned by EPA to mediate and resolve the dispute. The designated EPA official, the EPA employee whose decision is being disputed, and the Settling Parties shall have fourteen (14) days from the receipt by EPA of the notification of objection to meet and reach agreement. If agreement cannot be reached on any issue within this fourteen (14) day period, the designated EPA official shall provide a written decision to the Settling Parties and the Settling Parties shall implement the activities required by the EPA decision beginning no later than five (5) days after receipt of the EPA decision. If EPA determines, in its sole discretion, that the Settling Parties acted in good faith in invoking dispute resolution regarding any EPA notice of approval or decision other than an EPA bill for response costs, the time period to implement or complete the disputed EPA decision will be suspended during the pendency of the dispute pursuant to the procedures and deadlines of this Paragraph; provided however, that the accrual of stipulated penalties shall not be suspended by this provision. Engagement of a dispute resolution among the parties shall not be cause for the delay of any undisputed work or any other undisputed obligations under this Order. If the decision of the designated official resolving the dispute grants any relief to the Settling Parties, then no stipulated penalties shall be due for the matter as to which such relief was granted.

55. If the Settling Parties object to an EPA decision involving a substantial modification to the Statement of Work,

the Director of the EPA Region I Waste Management Division shall mediate and resolve the dispute. The Director shall determine, in her or his sole discretion, whether the decision in fact involves a substantial modification to the Statement of Work. During the pendency of a dispute under this Paragraph, the accrual of stipulated penalties which relate to the non-performance of work required by the disputed EPA decision shall be suspended. Disputes under this Paragraph shall in all other respects be governed by Paragraphs 54 and 56.

56. In the event that the Settling Parties do not implement the activities required by the EPA decision, the EPA Regional Administrator may take such civil enforcement actions against the Settling Parties as may be provided by statutory or equitable authorities, including, but not limited to, the assessment of such civil penalties or damages as are authorized by Sections 122 and 109 of CERCLA. In such an event, EPA retains the right to perform additional studies and to conduct a partial or complete Remedial Investigation/Feasibility Study pursuant to its authority under CERCLA and to recover the costs thereof from the Settling Parties.

Stipulated Penalties for Delays in Performance

57. For each day that the Settling Parties fail to complete a major deliverable identified in the SOW or to comply with any time deadline for any major deliverable established pursuant to this Order, the Settling Parties shall pay to EPA upon demand

pursuant to Paragraph 59 the sums set forth below as stipulated penalties:

<u>Period of Failure to Comply</u>	<u>Penalty Per Day</u>
1st - 7th day	\$ 750
8th - 14th day	\$ 1500
each day thereafter	\$ 3000

Penalties shall begin to accrue on the day after performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity.

58. For each day that the Settling Parties fail to comply with any deadline established pursuant to this Order other than deadlines governed by Paragraph 57 hereto, stipulated penalties to EPA in the amount of two hundred and fifty dollars (\$250 per day shall accrue on the day after performance is due and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity; provided however, that no penalties shall be imposed under this Paragraph for failure to comply with the requirements of Paragraph 29(3).

59. Any penalty accruing under Paragraphs 57 or 58 shall be due and payable within thirty (30) days of the receipt of a written demand by EPA. Payment of such penalty shall be made by certified check payable to the Hazardous Substances Superfund, and mailed to the following address with a notation of the docket number of this Order:

Region I
U.S. Environmental Protection Agency
Attn: Superfund Accounting
P.O. Box 360197 M
Pittsburgh, PA 15251

A copy of the certified check shall be sent to the Remedial Project Manager within five (5) days of payment. The stipulated penalties set forth in this section do not preclude EPA from electing to pursue any other remedies or sanctions which may be available to EPA by reason of the Settling Parties' violation of this Order or the Settling Parties' failure or refusal to comply with any of the requirements of this Order. Such remedies and sanctions include injunctive relief, the assessment of such civil penalties or damages as are authorized by Sections 122 and 109 of CERCLA, or the performance of a federally-funded response action, and a corresponding suit for reimbursement of costs incurred by the United States.

Civil Penalties for Noncompliance

60. Violations of this Order or any portion thereof may subject the Settling Parties to civil penalties of up to \$25,000 per violation and \$25,000 for each day in which such violation continues, as provided in Sections 109 and 122 of CERCLA, 42 U.S.C. §§ 9609, 9622. The Settling Parties are further advised that they may also be subject to penalties of up to \$75,000 for each day during which a second or subsequent violation continues.

Certification of the Settling Parties'

Performance of the Work Activities

61. Within one hundred and twenty (120) days after EPA's issuance of the Record of Decision relating to this RI/FS, EPA shall determine if the Settling Parties have met all of their responsibilities under Attachment A (Statement of Work) and under the provisions of the Order, including payment of response and oversight costs and any stipulated penalties or other penalties or damages that the Settling Parties may have incurred during the course of their activities under the Order. If EPA determines that such responsibilities have been materially satisfied, EPA will certify in writing to the Settling Parties that their responsibilities under the Statement of Work, the Work Plan, and this Order have been completely and successfully discharged consistent with the NCP; provided, however, that such certification shall not cover any obligations of the Settling Parties regarding the payment of response and oversight costs and any associated stipulated penalties which were not yet billed to the Settling Parties at the time of the certification. EPA's decision regarding certification shall be subject to Dispute Resolution under Paragraph 54.

Covenant Not to Sue

62. Upon certification by EPA that the Settling Parties have completed the RI/FS in accordance with this Order, EPA covenants not to sue the Settling Parties for completion of the RI/FS related to any operable units covered by the signed Record

of Decision. EPA retains the right, in its sole discretion, to revoke the covenant not to sue and render it null and void in the event that the Settling Parties fail to fulfill their obligations regarding the payment of response and oversight costs and any associated stipulated penalties which were not yet billed to the Settling Parties at the time of the certification. Settling Parties are not released from liability, if any, for any actions taken beyond the terms of this Order regarding removals, other operable units, remedial design/remedial action of this operable unit, or activities arising pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c).

Settling Parties' Denial of Liability

63. By entering into this Order, or by taking any action in accordance with it, the Settling Parties agree to be bound by all of the terms hereunder; provided, however, that the Settling Parties do not admit any of the factual allegations, findings, or legal determinations contained in the Order, including the Statement of Work (SOW), nor do Settling Parties admit liability for any purpose or admit any issues of law or fact or any responsibility for the alleged release or threat of release of any hazardous substance into the environment. The participation of any Settling Party in the Order shall not be admissible against Settling Parties in any judicial or administrative proceeding, except for an action by EPA to enforce the terms of this Order, or actions to which EPA is a party which allege

injury based on acts or omissions of Settling Parties in connection with performance under this Order. However, the terms of this Order and the participation of the Settling Parties, shall be admissible in any action brought by any Settling Party(s) to enforce any contractual obligations imposed by any agreement among them.

It is the intent of the parties hereto that neither the terms of this Order, including any allegations, finding, conclusion or determination set forth herein, nor the act of performance hereunder, shall be used against the Settling Parties as a collateral estoppel in any other proceeding with EPA except for an action by EPA to enforce the terms of this Order.

By signing and consenting to the Order, and taking actions pursuant to it, Settling Parties do not concede that the RI/FS or any other investigation at the Site is necessary to protect public health or welfare or the environment. Further, Settling Parties do not concede that an actual or threatened release of a hazardous waste or substance at the Site may present an imminent and substantial endangerment to public health or welfare or environment. Settling Parties have agreed to this Order to avoid unnecessary conflict or litigation.

Settling Parties' Reservation of Rights

64. Except as set forth in this Order, including but not limited to Paragraph 71, the Settling Parties expressly reserve all rights and defenses that each or any of them may have in law

or equity for any claim or cause of action it may have against any party including the United States, its agencies, departments, and instrumentalities. Any claim not expressly waived by the Settling Parties shall be deemed reserved.

65. Notwithstanding any obligations in this Order requiring the Settling Parties to make any records, documents, or any other materials available to EPA, nothing herein shall be construed to be a waiver of any rights a Settling Party may have to assert the attorney-client privilege or the attorney work product doctrine as to those materials. However, no analytical information or information specified in section 104(e)(7)(F) of CERCLA shall be subject to any such privilege.

Enforcement Actions Against Non-Settlers

66. It is the policy of the United States to identify potentially responsible parties who do not participate in CERCLA settlements and, subject to its non-reviewable prosecutorial discretion, to seek reimbursement of response costs not covered by settlement and/or take other appropriate action against such non-settling parties pursuant to the provisions of CERCLA.

Contribution Protection

67. With regard to claims for contribution against the Settling Parties for matters addressed in this Order, the parties hereto agree that the Settling Parties are entitled to such

protection from contribution actions or claims to the extent provided by Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2).

EPA's Reservation of Rights

68. EPA reserves the right to bring an action against the Settling Parties under Section 107 of CERCLA for recovery of: (i) all past response costs incurred by the United States at the Site after February 9, 1991 except oversight costs paid pursuant to this Order, provided that the Settling Parties have fulfilled all of their obligations under the Cost Recovery Administrative Agreement, EPA Region I CERCLA Docket No. I-91-1094; (ii) any costs incurred in the event that EPA performs all or a portion of the RI/FS; and (iii) any future costs incurred by the United States in connection with response activities conducted under CERCLA at this Site. EPA expressly reserves any and all rights and defenses that it may have to enforce this Order against the Settling Parties, including EPA's right under this Order both to disapprove of work performed by the Settling Parties and to require that the Settling Parties perform tasks in addition to those detailed in this Order. In addition, EPA reserves the right to undertake actions under Section 104 of CERCLA, including removal and/or remedial actions, at any time and to perform any and all portions of the RI/FS which the Settling Parties fail to perform to EPA's satisfaction. Except as expressly provided herein, issuance of this Order shall not affect or limit in any way any rights which EPA may have in relation to any liabilities

or obligations which the Settling Parties or other persons may be subject to under CERCLA or other laws by virtue of any connections that the Settling Parties or those other persons have or may have had with the Site. EPA reserves any and all rights to take any enforcement action pursuant to CERCLA and/or any other available legal authority, including the right to seek injunctive relief, response costs, monetary penalties, and punitive damages for any violation of law or this Order.

69. Notwithstanding any other provision of this Order, EPA shall retain all of its information gathering, entry, inspection, and enforcement authorities and rights under CERCLA and any other applicable law, regulation, or permit.

Other Claims

70. Except as expressly provided herein, nothing in this Order shall constitute or be construed as a release or covenant not to sue regarding any claim, cause of action, or demand in law or equity against any person, firm, trust, trustee, joint venture, partnership, corporation, or other entity for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, hazardous wastes, pollutants, or contaminants found at, taken to, or taken from the Site. Except as expressly provided herein, this Order shall not estop or limit any legal or equitable claims of the United States against the Settling Parties, their agents,

contractors, or assigns, including, but not limited to, claims related to releases of hazardous substances or other pollutants or contaminants.

71. In consideration of the entry of this Order, the Settling Parties agree not to assert any causes of action, claims, or demands against the Hazardous Substances Superfund or EPA (whether directly or as the United States) for the costs of the RI/FS or any other cost incurred pursuant to this Order. This Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA. The Settling Parties further agree not to assert any causes of action, claims, or demands against any department or agency of the United States for costs incurred by such department or agency in performing oversight functions pursuant to a cooperative agreement with EPA.

Indemnification

72. The United States does not assume any liability by entering into this Order or by virtue of any designation of the Settling Parties as EPA's authorized representatives. The Settling Parties agree to indemnify and save and hold harmless the United States Government and its agencies, departments, agents, officers, employees, and representatives from any and all claims or causes of action arising from or on account of acts or omissions of the Settling Parties, their officers, employees, agents, servants, receivers, successors, trustees, assignees, or contractors in carrying out the activities pursuant to this

Order. This agreement to indemnify and hold harmless does not include claims or causes of action arising from or on account of acts or omissions of the United States and its agencies, departments, agents, officers, employees and representatives. The United States shall not be held out as a party to, or in any other way be held liable under, any contract entered into by the Settling Parties or by the Contractor in carrying out the activities pursuant to this Order.

Third Party Rights

73. EPA and the Settling Parties agree that Sections 113(h) and 310 of CERCLA and applicable law govern the rights, if any, of persons not parties to this Order to enforce the terms of this Order. Nothing in this Order shall be construed as creating or expanding any rights enforceable by any person not a party to this Order beyond those rights, if any, afforded them under Sections 113(h) or 310 of CERCLA or applicable law.

Waiver of Settlement Conference

74. In consideration of the communications among the Settling Parties and EPA regarding the terms of this Order prior to its issuance, Settling Parties hereby agree that there is no need for a settlement conference prior to the effective date of this Order.

Notice to the State and Federal Natural Resource Trustee

75. Pursuant to the requirements of Sections 121(f) and 104(b)(2) of CERCLA, EPA has notified the State of Vermont of the scope of the response action, the negotiations with the potentially responsible parties, and the issuance of this Order.

76. Pursuant to Section 122(j) of CERCLA, EPA has notified the Federal Natural Resource Trustees of the scope of the response action, the negotiations with the potentially responsible parties, and the issuance of this Order.

Modification of Order

77. This Order, with the exception of the Statement of Work (Attachment A) or accepted deliverables thereunder, may only be modified upon the written agreement of _____ by signature of the Regional Administrator and the Settling Parties' Project Coordinator. The Statement of Work may be modified upon signature of the Geographic Section Chief. EPA may modify accepted deliverables itself upon the signature of the Geographic Section Chief.

Separate Documents

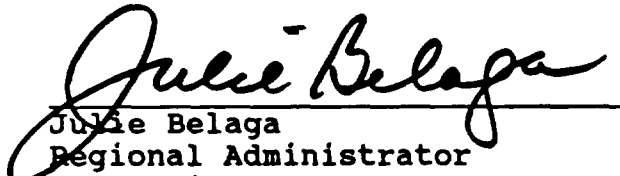
78. This Order may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

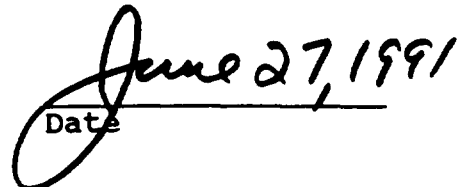
Effective Date; Computation of Time

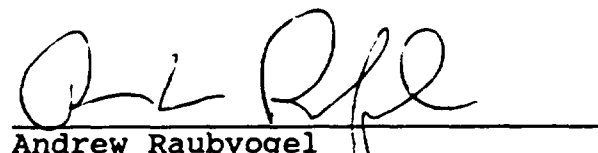
79. This Order shall be effective ten (10) days after the Order is signed by the Regional Administrator. All times for performance of activities under this Order shall be calculated from the effective date. For purposes of this Order, the term "day" shall mean a calendar day unless otherwise noted herein. When computing any period of time under this Order, if the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the next working day.

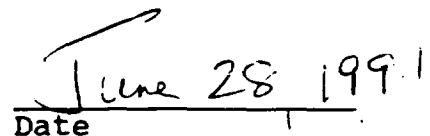
Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED AND ORDERED BY:


Julie Belaga
Regional Administrator
EPA Region I


Date


Andrew Raubvogel
Assistant Regional Counsel
EPA Region I


Date

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:

BANNER PUBLISHING CORPORATION

By:



MARK E. ALDAM

Title:

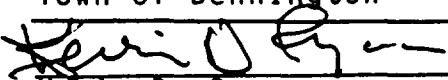
ASSISTANT TREASURER

Date:

JUNE 26, 1991

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:	<u>Town of Bennington</u>
By:	<u></u>
	<u>Kevin D. Ryan</u>
Title:	<u>Town Manager</u>
Date:	<u>June 26, 1991</u>

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:

Bennington Inc. Waste Inc

By:

Ante J. Mouri

Title:

President

Date:

6/26/91

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:

Bayco Lubricating Corp.

By:

[Signature]

Title:

President & CEO

Date:

June 26, 1991

**Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont**

IT IS SO AGREED,

Name of Settling Party: Chemical Fabrics Corporation
By: Walter J. Lundy
Title: Sr. Vice President
Date: 6/26/91

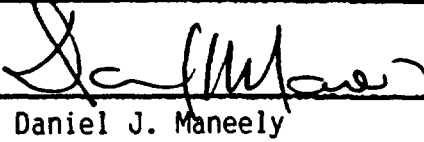
Administrative Order by Consent
EPA CERCLA Docket No. I-_____
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Respondent:

Courtaulds Structural Composites Inc

By:



Daniel J. Maneely

Title:

General Manager/President

Date:

June 26, 1991

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:

East Mt. Transport

By:

[Signature]

Title:

President

Date:

6/26/91

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:

ENVIRONMENTAL ACTION, INC.
(NOTICED AS "ENVIRONMENTAL ACTION WASTE, INC.")

By:


WILLIAM R. APKIN

Title:

TREASURER

Date:

JUNE 26, 1991

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:

EVEREADY BATTERY COMPANY, INC.

By:

Walter E. Tauler

Title:

VICE-PRESIDENT PRODUCTION

Date:

6/26/91

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party: G-C-D-C, INC.

By:


Geraldine H. Cohen

Title: President

Date: June 26, 1991

Administrative Order by Consent
EPA CERCLA Docket No. I-91-1093
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Settling Party:

Johnson Controls, Inc.

By:

Title:

Battery Group Counsel

Date:

June 27, 1991

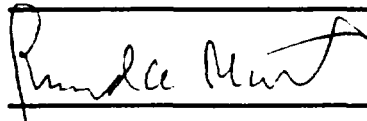
Administrative Order by Consent
EPA CERCLA Docket No. I-
Bennington Landfill Superfund Site, Bennington, Vermont

IT IS SO AGREED,

Name of Respondent:

Textron Inc.

By:



Richard A. McWhirter
Senior Vice President and Secretary

Title:

Date:

June 21, 1991

**STATEMENT OF WORK FOR REMEDIAL INVESTIGATION AND FEASIBILITY
STUDY FOR THE BENNINGTON LANDFILL SUPERFUND SITE**

**SECTION 1: OBJECTIVES, REPORTING REQUIREMENTS
REVIEW RIGHTS AND SCHEDULE**

I. OBJECTIVES

The primary objective of the Remedial Investigation and Feasibility Study (RI/FS) shall be to assess Site conditions and evaluate alternatives to the extent necessary to select a remedy for the Site, as defined in the Administrative Order by Consent (Consent Order), Docket No. I-91-1093, that shall be consistent with the National Contingency Plan (NCP) and relevant guidance. The RI and FS shall be conducted simultaneously as integrated, phased studies leading to selection of a remedy. The integration and phasing of the RI and FS reflect the intent of EPA's developing policies for RI/FS studies as reflected in "Guidance for Conducting Remedial Investigation and Feasibility Studies Under CERCLA" (EPA/540/G-89/004, OSWER Directive 9355.3-01 October 1988), "Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites" EPA/540/P-91/001, OSWER Directive 9355.3-11, February 1991 and the current National Contingency Plan (NCP) (40 CFR Part 300).

A. Remedial Investigation

The objectives of the RI portions are to:

1. define the source(s), nature, extent, and distribution of contaminants released;
2. determine and quantify potential exposure pathways;
3. provide sufficient information to assess the risks to human health and to the environment; and
4. provide sufficient information to evaluate remedial alternatives, conceptually design remedial actions, select a remedy, and issue a record of decision.

The procedures used to address the objectives listed above include, but are not limited to, evaluating all existing Site information including data generated by the Settling Parties, EPA, State of Vermont, and their

respective contractors; identifying data gaps; performing field sampling and laboratory analyses; conducting bench scale and/or field pilot studies if necessary, and consulting available applicable, or relevant and appropriate human health and environmental regulations and/or laws.

B. Feasibility Study

The objectives of the FS portions are to:

1. review the applicability of various remedial technologies, including innovative technologies, to determine whether they are appropriate remedies for the Site;
2. determine if each alternative developed by combining technologies is effective, by evaluating in the short and long term whether it is:
 - (a) effective,
 - (b) implementable, and
 - (c) cost effective, but cost shall only be used to evaluate alternatives of similar effectiveness;
3. evaluate each alternative or combination of alternatives through a detailed and comparative analysis based upon the nine (9) criteria listed in the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA 540/G-89/004 OSWER Dir. 9355.3-01 October 1988), "Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites" EPA 540/P-91/001, OSWER Directive 9355.3-11, February 1991 and any criteria identified in the NCP (40 CFR Part 300) or CERCLA as amended; and
4. provide direction to the RI portions to ensure that sufficient data of the appropriate type is gathered to select a remedy based on the factors mentioned in the objectives listed above.

II. REPORTING REQUIREMENTS

All data, methods, and interpretations must be:

- A. scientifically and technically sound with all assumptions, biases, potential deficiencies, safety factors, and design criteria explicitly stated;

- B. discussed with observations and interpretation clearly identifiable and distinguishable;
- C. discussed with all supporting reference material clearly identified and included;
- D. concisely illustrated and presented in separate graphs, charts, maps, plans and/or cross-sections where possible so that the text provides a discussion of such illustrations;
- E. linked to each and every objective for which they were completed and to which they are applicable; and
- F. sufficient to satisfy the objectives of the RI and FS listed above.

III. REVIEW RIGHTS

If EPA at any time during or after the RI/FS process determines that the objectives of the RI or FS are not fully met, additional work plans, studies or other appropriate activities shall be designed and performed as provided in Paragraphs 17 and 68 of the Consent Order.

The Settling Parties must also perform additional field investigations if new areas of concern are identified that require characterization to accurately define the Site boundaries.

IV. SCHEDULE: STEPS AND DELIVERABLES

A. RI/FS Steps

The Settling Parties shall perform the RI/FS as discussed in this section and as shown in Figure 1 and Table 1. The illustrated process is based on the current understanding of the Site. The integrated RI/FS process ensures an orderly selection of a remedy. Site data needed to perform the FS shall be identified as early as possible in the RI. However, the results of investigations during the RI/FS may require changes in the process.

The integrated RI/FS process described herein for the Site may have five (5) major steps. Each step of the RI/FS process is associated with one or more phases of the RI or the FS and at least one deliverable, as shown in Figure 1 and discussed in Sections 2 through 6. The RI has two phases, and the FS has two phases (see Figure 1 Table 1). In this Statement of Work, Phase 1

of the RI, the Initial Site Characterization has been divided into Phase 1A and Phase 1B Field Investigations.

B. RI/FS Deliverables

Deliverables for each step of the RI/FS are shown on Table 1 and Figure 1. The actual number of deliverables may vary depending on:

1. mutually agreeable changes to the schedule;
2. tasks within RI/FS steps, particularly the tasks planned for the scoping of the RI/FS (step 1) and the initial site characterization (step 2);
3. revisions based on EPA review;
4. requests for additional field studies, analyses, and documentation by EPA or the Settling Parties; and
5. the quality and completeness of Settling Parties' work.

EPA will consult with Vermont in its review of each major deliverable as described in the flowchart on Figure 1; however, EPA retains the authority to approve or disapprove the deliverables pursuant to the terms of the Consent Order.

C. RI/FS Schedule

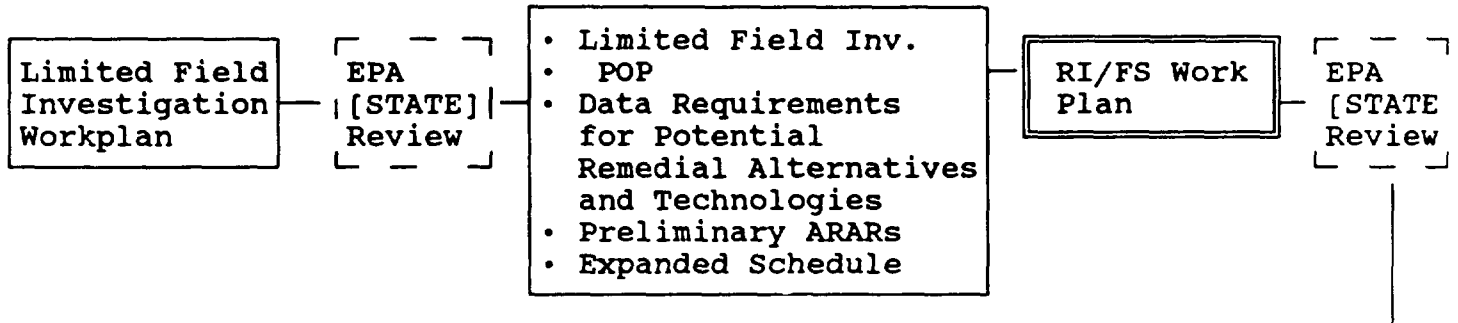
Initiation of the schedule for the Settling Parties to submit the work plan for the Limited Field Investigation and to complete the scoping of the RI/FS phase and deliver the Work Plan for the RI/FS shall be triggered by the Effective Date of the Consent Order to perform the RI/FS. Initiation of the other phases of the RI/FS shall be triggered by notice from EPA. EPA may give notice to start a component of the study even if prior steps have not been completed.

In addition to appearing as an attachment to the signed agreement, the schedule shall be included in the Work Plan for the RI/FS. The monthly progress reports shall include but not limited to information regarding changes in schedule, and an updated schedule when such changes are expected to effect the duration of the project by four (4) weeks or greater.

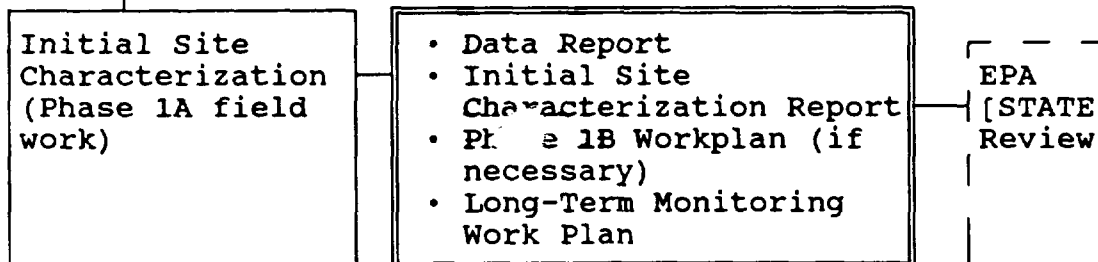
FIGURE 1. FLOW DIAGRAM OF RI/FS PROCESS

KEY: [] Agency Action [] PRP Deliverable [] PRP Work

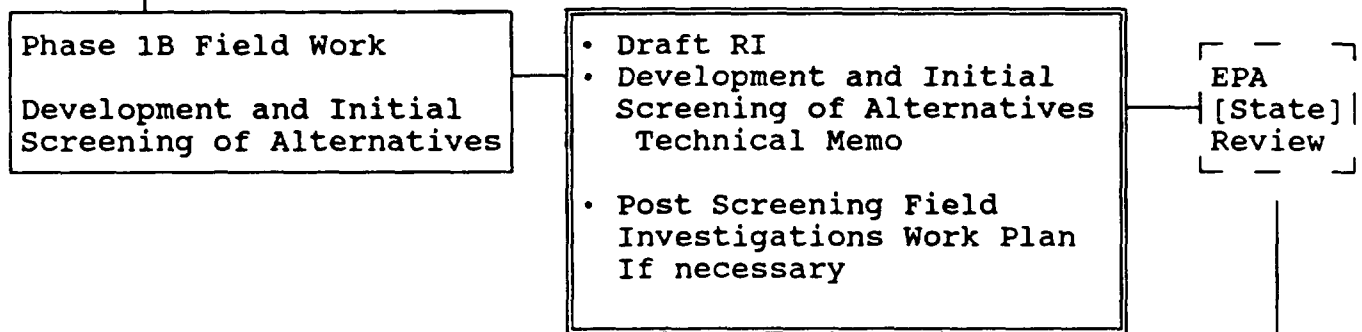
STEP 1: SCOPING THE RI/FS



STEP 2: INITIAL SITE CHARACTERIZATION (PHASE 1A RI)



STEP 3: PHASE 1B FIELD WORK (PHASE 1B RI, PHASE 1 FS)



**STEP 4: POST SCREENING FIELD INVESTIGATION AND FS DEVELOPMENT
(PHASE 2 RI, PHASE 2 FS)**

Post Screening Field Investigations
Pilot Studies (if necessary)
Detailed Analysis of Alternatives

First Draft RI/FS

EPA
[STATE]
Review

STEP 5*: ADDITIONAL RI/FS DRAFTS, REVIEWS, REVISIONS

Second
Draft
RI/FS

EPA
[STATE]
Review

Additional
Draft
RI/FS

EPA
[STATE]
Review

Final
Draft
RI/FS

Public
Comment
Period

Responsive-
ness
Summary

* Note: Step 5 consists of however many RI/FS drafts EPA deems necessary. To prepare subsequent drafts of RI/FS, additional field investigations may be required.

Baseline
Risk
Assessment

Record of
Decision

TABLE 1

<u>STEP</u>		<u>DELIVERABLE</u>	<u>DUE DATE</u>
1. Scoping the RI/FS	+	Work Plan for the Limited Field Investigation	6 weeks after the effective date of the Consent Order
	+	RI/FS Work Plan	12 weeks after EPA approval of the LFI Work Plan
2. Phase IA RI	+	Initial Site Characterization Report, Long Term Monitoring Work Plan, Phase 1B Work Plan (if necessary)	36 weeks after EPA approval the RI/FS Work Plan
3. Phase 1B Field Work (Phase 1B RI) (Phase 1 FS)	+	Draft RI, Development and Screening of Alternatives Technical Memo, Post-Screening Field Investigation Work Plan (if necessary)	18 weeks EPA notice to proceed with Step 3
4. Post-screening Field Investigation and FS Development (Phase 2 RI) (Phase 2 FS)	+	First draft RI/FS	to be determined by EPA
5. Additional RI/FS Drafts, Reviews, and Revisions		Second draft RI/FS and subsequent draft of the RI/FS until a final RI/FS is accepted by EPA for public review and comment, a responsiveness summary is completed and a Record of Decision is signed	to be determined by EPA

+ Major Deliverable

SECTION 2: SCOPING OF THE RI/FS

I. OBJECTIVES

The scoping of the RI/FS shall ensure that the Settling Parties:

- A. understand the objectives of the RI/FS;
- B. develop procedures to meet the RI/FS objectives, including those for field activities;
- C. initiate the identification of federal or state Applicable or Relevant and Appropriate Requirements (ARARs) which shall provide criteria for remedy selection at the Site;
- D. assemble and evaluate existing data, identify data gaps, and determine inconsistencies;
- E. develop a conceptual understanding of the Site based on the evaluation of existing data described in paragraph (4) of this section;
- F. identify likely response scenarios and potentially applicable technologies and operable units that may address Site problems;
- G. undertake limited data collection efforts or studies where this information will assist in scoping the RI/FS or accelerate response actions, and begin to identify the need for treatability studies, as appropriate;
- H. identify the type, quality and quantity of the data needed to assess potential remedial technologies, to evaluate technologies that may be combined to form remedial alternatives, and to support decisions regarding remedial response activities;
- I. prepare site-specific health and safety plans that shall specify, at a minimum, employee training and protective equipment, medical surveillance requirements, standard operation procedures, and a contingency plan that conforms with 29 CFR 1910.120(1)(1) and (1)(2);
- J. develop sampling and analysis plans that shall provide a process for obtaining data of sufficient quality and quantity to satisfy data needs; and

- K. draft the negotiated schedule which shows the flow of studies and the submission of deliverables.

II. LIMITED FIELD INVESTIGATION

A. Objectives

In order to produce a focused RI/FS Work Plan, the Settling Parties shall conduct a Limited Field Investigation. The objectives of the Limited Field Investigation are to:

1. Increase the understanding of the site in order to enhance the scoping effort.
2. Improve the focus of the RI/FS to reduce time and cost.

Data obtained through the Limited Field Investigation shall be used for the development of the conceptual site model and the refinement of sampling plans for the Phase I RI/FS. Therefore, field activities shall be limited to collection of easily obtainable data, and obtaining Level I and II analytical support.

B. Tasks

Tasks included in the Limited Field Investigation will include, but are not limited to the following:

1. Site survey to prepare two base maps for the Site. One map shall have two-foot elevation contours and the other shall have five-foot elevation contours. The maps shall contain all standard topographic, physiographic, cultural, and facility features, the surveyed locations of all current monitoring wells, piezometer, and drainage culverts.
2. Geophysical survey to locate the buried Lagoon, bedrock surface topography and leachate plume(s) if present between the covered Landfill and Hewitt brook. The geophysical work may consist of at least magnetometer, seismic refraction, electromagnetic and electrical resistivity to fulfill the intended data objective.
3. Geological reconnaissance, with focus on bedrock;
4. Review of Vermont Solid Waste records, EPA Region I technical records and review of historical air

photographs; an assessment of the need to develop and/or implement a collection method for the culvert effluent;

5. Soil gas survey;
6. Field screening of: sediments from Hewitt Brook, sediments from adjacent surface water bodies leading to Hewitt Brook; and the bottom of the pond receiving culvert discharges; water samples from leachate seeps and groundwater wells, and soils from the discharge culvert;
7. Evaluation of existing monitoring systems (approximately five wells and two piezometers) including field screening of air phase in wells, purge/sample with head space screening, perform a rising head test, on selected wells and defining depth and other integrity issues.
8. Initial characterization and/or description of the impact of the Site on air quality based on the results of air monitoring using screening instruments.

C. Data Quality

The Limited Field Investigation may include intrusive field methods such as field screening of: sediments from adjacent surface water bodies leading to Hewitt Brook, the bottom of the pond receiving culvert discharges, water samples from leachate seeps and groundwater wells and soils from the discharge culvert.

Data Quality Objectives for the Limited Field Investigation shall be developed consistent with Data Quality Objectives for Remedial Response Activities: Development Process (EPA/540/G-87/003, OSWER Directive 9355.0-7B, March 1987). Data collection during the Limited Field Investigation shall be consistent with the approved Limited Field Investigation Work Plan. or with methodology in A Compendium of Superfund Field Operations Methods: Volumes 1 and 2 (EPA/540/P-87/001a and EPA/540/P-87/001b, August 1987).

D. Limited Field Investigation Work Plan

Consistent with the schedule of deliverables included in Table 1, the Settling Parties shall submit a Limited Field Investigation Work Plan which shall include:

1. the Data Quality Objectives (DQOs) of the Limited Field Investigation;
2. a description of tasks to be included in the Limited Field Investigations;
3. protocols and QA/QC procedures to be used for each proposed field screening method, sample collection method and a health and safety plan; and
4. identification of on-site personnel supervising field investigation activities and their qualifications.

E. Schedule and Deliverable

The Limited Field Investigation shall proceed upon EPA approval of the Limited Field Investigation Work Plan. The results of the Limited Field Investigation shall be included in the Work Plan for the RI/FS.

III. DELIVERABLES

A. Overview

In scoping the RI/FS, the Settling Parties shall deliver to EPA the following in writing in accordance with the schedule in Figure 1:

1. Project Operations Plan;
2. a preliminary evaluation of potential Applicable or Relevant and Appropriate Requirements (ARARs);
3. Data Requirements of Potential Remedial Alternatives and Technologies;
4. Expanded Schedule for the RI/FS.
5. Results of limited field investigation.

Collectively, these documents are referred to as the RI/FS Work Plan in Figure 1, Table 1, and elsewhere in this document. The initial RI/FS Work Plan shall describe necessary studies to be done during the Phase 1A of the Initial Site Characterization. The initial RI/FS Work Plan shall be revised as necessary, and revisions shall be submitted prior to each subsequent phase of work as described in Table 1.

To reduce the submittal of repetitive information contained in each subsequent Work Plan, the Settling Parties shall provide the appropriate cross-references at key places within each document.

B. Project Operations Plan

Before Phase 1A of the remedial investigation field activities, several site-specific plans shall be written to establish procedures to be followed by the Settling Parties in performing field, laboratory, and analysis work and community and agency liaison activities. These site-specific plans include the:

- 1) Site Management Plan;
- 2) Sampling and Analysis Plan (SAP) which includes the Field Sampling Plan (FSP) and the Quality Assurance Project Plan (QAPP);
- 3) Health and Safety Plan (HSP); and
- 4) Community Relations Support Plan.

The Settling Parties shall combine these plans to prepare the Project Operations Plan (POP). As illustrated in Figure 1, the POP is part of the Work Plan for the RI/FS. The POP is subject to EPA review, subsequent requests by EPA for revision, and rewriting by the Settling Parties before the commencement of RI field work at the Site. The four components of the POP are discussed in the following Sections.

1. Site Management Plan

The overall objective of the Site Management Plan is to provide EPA with a written understanding and commitment of how various project aspects such as access, security, contingency procedures, management responsibilities, waste disposal, budgeting, and data handling are being managed by the Settling Parties. As part of the plan, the Settling Parties shall include, at a minimum:

- a. a map and list of properties, the current property owners, and addresses of owners to whose property access may be required;
- b. a clear indication of the exclusion zone, contamination reduction zone, and clean area for on-site activities;
- c. a provision for limiting and controlling site access to the white goods, brush, and pallet disposal areas, and waste water treatment plant sludge spreading area by the local population during implementation of the RI/FS due to health and safety considerations;
- d. necessary procedures and sample letters, for EPA review and approval, to land owners to arrange field

activities and to ensure EPA and Vermont are abreast of access-related problems and issues;

- e. a provision for the security of government and private property on the Site;
- f. measures to prevent unauthorized entry to the Site, which might result in exposure of persons to potentially hazardous conditions;
- g. the location of a field office for on-site activities;
- h. contingency and notification plans for potentially dangerous site field activities associated with the RI/FS;
- i. provision for the monitoring of airborne contaminants released by Site activities which may affect the local populations;
- j. communication to EPA, Vermont, and the public the organization and management of the RI/FS, including key personnel and their responsibilities;
- k. a list of potential contractors and subcontractors of the Settling Parties in the RI/FS and a description of their activities and roles;
- l. provision for the proper disposal of materials used and wastes generated during the RI/FS (e.g., drill cuttings, extracted ground water, protective clothing, disposable equipment). These provisions shall be consistent with the offsite disposal aspects of SARA, RCRA, and applicable state laws. The Settling Parties, a representative of the Settling Parties, or another party acceptable to EPA shall be identified as the generator of wastes for the purpose of regulatory or policy compliance; and
- m. plans and procedures for organizing, manipulating, and presenting the data generated and for verifying its quality before and during the RI/FS. These plans shall include the description of the proposed computer data base management system that is compatible to the degree possible, with hardware and software available to EPA Region I personnel for handling media-specific sampling results obtained before and during the RI/FS. The description shall include data input fields, examples of data base management output from the coding of all pre-RI/FS sample data, appropriate quality assurance/quality control to ensure accuracy, and capabilities of data

manipulation. To the degree possible, the data base management parameters shall be compatible with the EPA Region I data storage and analysis system.

2. Sampling and Analysis Plan (SAP)

The purpose of the Sampling and Analysis Plan is to ensure that sampling data collection activities will be comparable to and compatible with previous data collection activities performed at the site while providing a mechanism for planning and approving field activities.

The overall objectives of the Sampling and Analysis Plan are as follows:

- a. to document specific objectives, procedures, and rationales for field work and sample analytical work;
- b. to provide a mechanism for planning and approving site and laboratory activities;
- c. to ensure that sampling and analysis activities are necessary and sufficient; and
- d. to provide a common point of reference for all parties to ensure the comparability and compatibility of all objectives and of sampling and analysis activities.

The SAP shall be the framework of all anticipated field activities (e.g., sampling objectives, evaluation of existing data, standard operating procedures) and contain specific information on the Phase 1A field work (e.g., sampling locations and rationale, sample numbers and rationale, analyses of samples). Revisions or a statement regarding the need for revisions shall be included in each deliverable describing new field work.

The SAP consists of two parts: (1) a Quality Assurance Project Plan (QAPP) and (2) the Field Sampling Plan (FSP). Components of these two individual plans are described in the following sections. In addition, the FSP and QAPP should be submitted as a single document (although they may be bound separately to facilitate use of the FSP in the field).

Guidance on the topics covered in the QAPP and FSP and their integration into each of these plans and the integration of the QAPP and the FSP into the SAP can be found in the following several references and shall be used to develop the SAP:

Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites" EPA/540/P-91/001, OSWER Directive 9355.3-11, February 1991

Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01, EPA/540/G-89/004, October 1988);

Data Quality Objectives for Remedial Response Activities Development Process (OSWER Directive 9355.0-7, EPA/540/G-87/003, March 1987);

Draft Data Quality Objectives for Remedial Response Activities, Example Scenario: RI/FS Activities at a Site with contaminated Soil and Ground Water (OSWER Directive 9355.0-7B, EPA/540/G-87/002, March 1987); and

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA Pub. SW-846, Third Edition).

2A. Quality Assurance Project Plan (QAPP)

The Quality Assurance Project Plan (QAPP) shall document in writing site-specific objectives, policies, organizations, functional activities, and specific quality assurance/ quality control activities designed to achieve the data quality objectives (DQOs) of the RI/FS. The QAPP shall cover all environmentally related measurements. The QAPP developed for this project shall document quality control and quality assurance policies, procedures, routines, and specifications.

All project activities throughout the RI/FS shall comply with the QAPP. All QAPP sampling and analysis objectives and procedures shall be consistent with Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (EPA, 1983 - EPA/QAMS 005/80) and appropriate EPA handbooks, manuals, and guidelines including Guidelines Establishing Test Procedures for the Analysis of Pollutants (40 CFR, Part 136).

The 16 basic elements of the QAPP are:

- 1) title page with provision for approval signatures of principal investigators;
- 2) table of contents;
- 3) project description;
- 4) project organization and responsibility;

- 5) quality assurance objectives for measurement data, in terms of precision, accuracy, completeness, representativeness, and comparability;
- 6) sampling procedures;
- 7) sample custody;
- 8) calibration procedures and frequency;
- 9) analytical procedures, which must be EPA approved or equivalent methods;
- 10) data reduction, validation, and reporting;
- 11) internal quality control checks and frequency;
- 12) performance and system audits and frequency;
- 13) preventive maintenance procedures and schedules;
- 14) specific routine procedures to be used to assess the precision, accuracy, and completeness of data and to assess specific measurement parameters involved;
- 15) corrective action; and
- 16) quality assurance reports to management.

As indicated in EPA/QAMS-005/80, the above list of essential elements must be considered in the QAPP for the RI/FS. If a particular element is not relevant to a project and therefore excluded from the QAPP, specific and detailed reasons for exclusion must be provided.

Information in a plan other than the QAPP may be cross-referenced clearly in the QAPP provided that all objectives, procedures, and rationales in the documents are consistent, and the reference material fulfills the requirements of EPA/QAMS-005/80. EPA-approved references, or equivalent, or alternative methods approved by EPA shall be used, and their corresponding EPA-approved guidelines shall be applied when they are available and applicable.

Laboratory QA/QC Procedures

The QA/QC procedures for any laboratory used during the RI/FS shall be included in the Settling Parties' QAPP. When this work is performed by a contractor to a private

party, each laboratory performing chemical analyses shall meet the following requirements:

- 1) be approved by the State Laboratory Evaluation Program, if available;
- 2) have successful performance in one of EPA's National Proficiency Sample Programs (i.e., Water Supply or Water Pollution Studies or the State's proficiency sampling program);
- 3) be familiar with the requirements of 48 CFR Part 1546 contract requirements for quality assurance; and
- 4) have a QAPP for the laboratory including all relevant analysis. This plan shall be referenced as part of the contractor's QAPP.

Data Validation Procedures

The Settling Parties are required to certify that all data has been validated by an independent person according to the Region I Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses and the Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses (amended as necessary to account for the differences between the approved analytical methods for the project and the Contract Laboratory Procedures (CLP) procedures). Approved validation methods shall be contained in the QAPP.

The independent person shall not be the laboratory conducting the analyses and should be a person with a working knowledge of or prior experience with EPA data validation procedures. The independent person shall certify that the data has been validated, discrepancies have been resolved if possible, and the appropriate qualifiers have been provided.

The Settling Parties must keep the complete data package and make it available to EPA on request in order for EPA to conduct an independent validation of the data. The complete data package shall consist of all results, the raw data, and all relevant QA/QC information. An example set of data package deliverables is listed below.

- 1) a summary of positive results and detection limits of non-detects with all raw data;

- 2) tabulated surrogate recoveries and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;
- 3) tabulated matrix spike/matrix spike duplicate recoveries, relative percent differences, spike concentrations, and QC limits from methods 3500 and 8000 in SW-846 and all validation and sample raw data;
- 4) associated blanks (trip, equipment, and method) with accompanying raw data for tests;
- 5) tabulated initial and continuing calibration results (concentrations, calibration factors or relative response factors and mean relative response factors, % differences and % relative standard deviations) with accompanying raw data;
- 6) tabulated retention time windows for each column;
- 7) a record of the daily analytical scheme (run logbook, instrument logbook) which includes samples and standards order of analysis;
- 8) the chain of custody for the sample shipment groups, SAS packing slip, SAS request forms;
- 9) a narrative summary of method and any problems encountered during extraction or analysis;
- 10) tabulated sample weights, volumes, and % solids used in each sample calculation;
- 11) example calculations for positive values and detection limits; and
- 12) SW-846 method 3500 and 8000 validation data for all tests.

The forms contained in Chapter 1 of SW-846 (Second Edition 1982 as amended by Update I, April 1984, and Update II, April 1985) or equivalent (which will be provided to EPA for review and approval) will be utilized to report the data when applicable. Raw data includes the associated chromatograms and the instrument printouts with area and height peak results. The peaks in all standards and samples must be labelled. The concentration of all standards analyzed with the amount injected must be included.

2B. Field Sampling Plan (FSP)

The objective of the Field Sampling Plan is to provide EPA and all parties involved with the collection and use of field data with a common written understanding of all fieldwork. The FSP shall address the RI/FS objectives and conform to the procedures in Section 2 of this document and the National Contingency Plan (NCP).

The FSP shall define in detail the sampling and data gathering methods used on a project. The FSP should be written so that a field sampling team unfamiliar with the Site would be able to gather the samples and field information required. Guidance for the selection of field methods, sampling procedures, and custody can be acquired from the Compendium of Superfund Field Operations Methods, (OSWER Directive 9355.0-12, EPA/540/P-87/001), which is a compilation of demonstrated field techniques that have been used during remedial response activities at hazardous waste sites.

The SAP shall specify in the FSP provisions for notifying EPA prior to initiation of field sampling or monitoring activities. For sample analysis requiring Routine Analytical Services (RAS) and Special Analytical Services (SAS) notification to EPA should be made fourteen (14) days and thirty (30) days in advance, respectively. The plan shall also allow split, replicate, or duplicate samples to be taken by EPA, Vermont (or their contractor personnel) and by other governmental agencies approved by EPA and who would be identified by EPA to the Settling Parties prior to initiation of the sampling. At the request of EPA or Vermont, the Settling Parties shall provide these samples in appropriate containers to the government representatives. Identical procedures shall be used to collect the Settling Parties', EPA and Vermont parallel samples unless otherwise specified by EPA or Vermont.

The FSP shall be site-specific and shall include the following information:

Site Background The analysis of the existing Site details must be included in the FSP. This analysis shall include a conceptual Site model. A conceptual Site model includes a description of the Site and surrounding areas and a discussion of known and suspected contaminant sources, probable transport pathways, and other information about the Site. The FSP shall also include descriptions of specific data gaps and ways in which sampling is designed to fill those gaps.

Sampling Objectives Specific objectives of a sampling effort that describe the intended uses of data must be clearly and succinctly stated.

Sample Location, Analyses, and Frequency This section of the sampling plan identifies each sample matrix to be collected and the constituents to be analyzed. Tables shall be used to clearly identify the number of samples to be collected along with the appropriate number of replicates and blanks. Figures shall be included to show the locations of existing or proposed sample points.

Sample Designation A sample numbering system shall be established. The sample designation should include the sample or well number, the sample round, the sample matrix (e.g., surface soil, ground water, soil boring), and the name of the Site.

Sampling Equipment and Procedures Sampling procedures must be clearly written. Step-by-step instructions for each type of sampling are necessary to enable the field team to gather data that shall meet the Data Quality Objectives (DQOs). A list should include the equipment to be used and the material composition (e.g., Teflon, stainless steel) of equipment along with decontamination procedures.

Sampling Handling and Analysis A table shall be included that identifies sample preservation methods, types of sampling jars, shipping requirements, and holding times. Examples of paperwork such as traffic reports, chain of custody forms, packing slips, and sample tags filled out for each sample as well as instructions for filling out the paperwork must be included. Field documentation methods including field notebooks and photographs shall be described.

Each Field Sampling Plan submitted as a part of the Work Plan for the RI/FS shall be sufficiently detailed to carry out the study, and shall provide data needed to fully address the objective of the study and to complete the study. Each study shall be designed to achieve a high performance on the first attempt. Each work plan shall be related (by cross-references) to the other requirements in the Project Operations Plan.

In the Field Sampling Plan for the RI/FS (Phase 1A), the Settling Parties shall include plans that describe how each of the following studies shall be done during the Initial Site Characterization. See Section 3 of this document to facilitate understanding of the type and

quality of the deliverable required for each activity of the Site characterization.

- 1) site survey;
- 2) soils and sources of contaminants;
- 3) subsurface and hydrogeological factors;
- 4) air quality;
- 5) surface water and sediment sampling;
- 6) ecological assessment; and
- 7) treatability and pilot studies, if necessary.

The complete results of these studies shall be described in the Initial Site Characterization Report. The validated data from these studies and the Initial Site Characterization Report shall be submitted according to the schedule (Table I of this document).

3. Health and Safety Plan

The objective of the site-specific Health and Safety Plan (HSP) is to establish the procedures, personnel responsibilities, and training necessary to protect the health or safety of all on-site personnel during the RI/FS. The plan shall provide for routine but hazardous field activities and for unexpected Site emergencies.

The site-specific health or safety requirements and procedures in the HSP shall be based on an ongoing assessment of Site conditions, including the most current information on each medium. For each field task during the RI/FS, the HSP shall identify:

- a. possible problems and hazards and their solutions;
- b. environmental surveillance measures;
- c. specifications for protective clothing;
- d. the appropriate level of respiratory protection;
- e. the rationale for selecting that level; and
- f. criteria, procedures, and mechanisms for upgrading the level of protection and for suspending activity, if necessary.

The HSP shall also include the delineation of exclusion areas on a map and describe provisions for this delineation in the field. The HSP shall indicate the on-site person responsible for implementing the HSP as a representative of the Settling Parties, protective equipment, personnel decontamination procedures, and medical surveillance. The following documents shall be consulted as appropriate:

Interim Standard Operations Safety Guides, (Hazardous Response Support Division, Office of Emergency and Remedial Response EPA, Wash. D.C. 1982);

Hazardous Waste Operations and Emergency Response, (Department of Labor, Occupational Safety and Health Administration, (OSHA) 29 CFR Part 1910); and

Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: Appendix B, (NIOSH/OSHA/USCG/EPA 1985).

OSHA regulations at 40 CFR 1910 and Chapter 9 of the Interim Standard Operating Safety Guide, which describes the routine emergency provisions of a site-specific health and safety plan, shall be the primary reference used by the Settling Parties in developing and implementing the Health and Safety Plan.

The measures in the HSP shall be developed and implemented to ensure compliance with all applicable State and Federal occupational health and safety regulations. The HSP shall be consistent with the objectives and contents of all other plans submitted by the Settling Parties. The HSP shall be updated during the course of the RI/FS, as necessary.

4. Community Relations Support Plan (CRSP)

EPA shall develop a Community Relations Plan (CRP) to describe public relations activities anticipated during the RI/FS. The Settling Parties shall develop a Community Relations Support Plan, whose objective is to ensure and specify adequate support from the Settling Parties for the community relations efforts of EPA. This support shall be at the request of EPA and may include, at a minimum:

- a. participation in public informational or technical meetings, including the provision of visual aids and equipment;
- b. preparation and copying of fact sheets or updates for submission to the RPM and

- c. assistance in preparing a responsiveness summary after the RI/FS public comment period.

C. Applicable or Relevant and Appropriate Requirements

The Settling Parties shall identify all probable Federal Applicable or Relevant and Appropriate Requirements (ARARs), identify State ARARs and identify any local requirements. Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal environmental or State environmental or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal or State environmental or facility citing laws that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA Site that their use is well suited to the particular site.

In addition to ARARs, the Settling Parties shall also make preliminary determinations on the extent that other publicly available criteria, advisories, and guidances are pertinent to the hazardous substances, location of the Site, and remedial actions. ARARs and other criteria, advisories, and guidances shall be:

1. considered in terms of their chemical-specific, location-specific, and action-specific attributes;
2. evaluated for each medium (surface water, ground water, sediment, soil, air, biota, and facilities), particularly for chemical-specific ARARs, but including other ARARs as appropriate;
3. distinguished for each technology considered, particularly for action-specific ARARs, but including other ARARs as appropriate; and
4. considered at each major step of the RI/FS where they are indicated.

In general, identification of chemical and location specific ARARs is more important in the beginning steps of the RI/FS, whereas the identification of action-specific ARARs gain importance later, during the more FS-oriented

steps. If a requirement is determined to be not applicable, the Settling Parties shall subsequently consider whether it is relevant and appropriate. When any new site-specific information becomes available, ARARs should be re-examined.

Chemical-specific ARARs are usually health or risk-based numerical limits on the amount of, or concentration of, a chemical that may be found in, or discharged to the ambient environment. Additive risks shall be evaluated and, if appropriate, shall be utilized as a remediation goal.

Location-specific ARARs are general restrictions placed upon the concentration of hazardous substances or the conduct of activities solely because they are in special locations. Some examples of special locations include, but are not limited to, floodplains, wetlands, historic places, places with objects of archaeological significance, and sensitive ecosystems or habitats.

Action-specific ARARs are usually technology-based or activity-based directions or limitations which control actions taken at CERCLA sites. Action-specific ARARs, as the name implies, govern the remedial actions. As part of the Work Plan for the RI/FS, the Settling Parties shall provide a preliminary list in the form of a chart of ARARs and publicly available EPA criteria, advisories, and guidances, and limitations. The description shall briefly describe the requirements and shall include: whether it is a numerical requirement; what it is based upon (i.e., health, technical practicality); and what media it is designed for (i.e., surface water, ambient air, etc.). The list shall indicate whether each requirement is: potentially applicable or relevant and appropriate; chemical-specific, location-specific, or action-specific; pertinent to surface water, ground water, soil, air, biota, or facilities; and affixed with specific levels or goals to be attained. If specific levels or goals are affixed, they must be enumerated in the chart.

Data requirements in terms of physical and chemical characteristics needed to evaluate ARARs shall be considered as part of the scoping. Such requirements may include but are not limited to chemical residuals, background levels, or various modeling parameters. Such data requirements shall be satisfied during Phase I of the RI to the extent possible, rather than during the later phases of the RI/FS. The Settling Parties shall identify attributes necessary to achieve specific levels or goals, and include appropriate procedures in the Initial Site Characterization (Phase I RI) discussed in Section 3.

The following shall be consulted during the ARAR identification process:

CERCLA Compliance with Other Laws Manual: Draft Guidance (August 1988, EPA/540/G-89/006).

CERCLA Compliance with Other Laws Manual: Part II. Clean Air Act and Other Environmental Statutes and State Requirements (August 1989, EPA/540/G-89/009).

Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites, EPA/540/P-91/001, OSWER Directive 9355.3-11, February 1991

Section 4 of Guidance of Feasibility Studies Under CERCLA (EPA, 1985c - EPA/540/G-85/003), and Appendix E of the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, EPA October 1988) present a partial list of potential ARARs.

The Settling Parties shall identify all site-specific ARARs. At a minimum, chemical- and location-specific ARARs shall be identified after the Initial Site Characterization and after Phase 1B, (if necessary) and the action-specific ARARs shall be identified after the Development and Initial Screening of the Remedial Alternatives. EPA shall have final authority in deciding which ARARs are retained or added for consideration, and the extent to which they must be considered in remedy selection. EPA shall provide sufficient justifications for incorporating or dropping a requirement shall be provided at each step where such decisions are made.

D. Data Requirements for Potential Remedial Alternatives and Technologies

Potential Remedial Action objectives shall be identified for each contaminated medium, and a preliminary range of remedial action alternatives and associated technologies shall be identified. The Settling Parties shall identify, consistent with the National Contingency Plan and applicable guidance, all potential remedies that may be useful in remediating affected media. In discussing potential remedies, EPA describes an alternative as a group of technologies, including innovative ones, that will achieve certain remedial action goals (see Section 4). The Settling Parties shall identify the various technologies, showing the critical data needed to evaluate such technologies, and the performance of technologies grouped into an alternative. These data requirements shall be initially developed during the Work Plan for the RI/FS and shall be further incorporated in all subsequent field investigation Work

Plans. The data shall be obtained during the Initial Site Characterization (Phase 1A of the RI, see Section 3), the Phase 1B Field Investigation if necessary (Phase 1B RI, Phase 1 FS, see section 4) and shall be further refined during the Post-Screening Field Investigation (Phase 2 RI, Phase 2 FS, see Section 5).

The identification of potential technologies shall help ensure that data needed to evaluate the technologies are collected in the Phase 1A and Phase 1B field investigations if necessary. Certain parameters may be common to several possible technologies and alternatives. For example, the following parameters for soils are common: chemical compounds, soil density, soil moisture, soil types, soil gradation, BTU values, total halogens, and total organic carbon. Where capping may be required, waste and soil properties such as moisture content, unit weight, strength parameters, and chemical and physical data may need to be obtained during the RI through field and laboratory testing to evaluate slope stability and rate of settlement. Continued settlement monitoring using surficial settlement platforms and settlement anchors may be appropriate within the waste areas to collect data to estimate post-construction subsidence. Similar common data requirements exist for alternative remedies for other media.

In addition to the common data requirements, any other data necessary to evaluate a particular technology or alternative leading to remedy selection shall be noted in the Work Plan and subsequently integrated into each field investigation. The EPA guidance including Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites, EPA/540/P-91/001, OSWER Directive 9355.3-11, EPA February 1991, Guidance on Conducting Remedial Investigations and Feasibility Studies Under CERCLA, (EPA/540/G-89/004, OSWER Directive 9355.3-01, EPA October 1988), and the Technology Screening Guide for Treatment of CERCLA Soils and Sludges, (EPA/540/2-88/004, September 1988) shall be sources of additional information on identifying alternative remedies and potential innovative technologies.

A preliminary list of broadly defined alternatives shall be developed by the Settling Parties. Consistent with Sections 4 and 5 of this document, this list shall include a range of alternatives in which treatment that significantly reduces the toxicity, mobility, or volume of waste is a component to extent practicable; one or more alternatives that involve containment with little or no treatment; and a no-action alternative. The Settling Parties shall present a chart, or a series of charts, showing the requirements and technologies to be considered for remedial alternatives.

E. Expanded Schedule for Remedial Investigation/Feasibility Study

The major predetermined deliverables are identified in Figure 1 and Table 1. The established schedule along with a more detailed, expanded schedule for subtasks shall be included as a component of the Work Plan for the RI/FS. Modifications of the schedule must be approved by EPA prior to their implementation.

The schedule shall be presented as a chart, which shall include target dates and time periods for each deliverable, to the extent possible. The chart shall be updated when the schedule changes by showing the original (planned) due date and revisions of the due date.

The monthly progress reports shall include but not limited to information regarding changes in schedule, and an updated schedule when such changes are expected to effect the duration of the project by four (4) weeks or greater.

**SECTION 3: INITIAL SITE CHARACTERIZATION:
Phase 1A Field Investigations**

I. OBJECTIVES

At its onset, the goal of the Initial Site Characterization shall be to collect all field data which can reasonably be assumed to be necessary for the Remedial Investigation (RI) and Feasibility Study(FS) and sufficient to select a remedy. The Site characterization shall conform to the Work Plan for the RI/FS. The Settling Parties shall characterize and/or describe the following, at a minimum:

1. extent to which the sources of the hazardous substances can be adequately identified and characterized;
2. amount, concentration, toxicity, environmental fate, transport (e.g., bioaccumulation, persistence, mobility), phase (e.g., solid, liquid), and other significant characteristics of each hazardous substance present;
3. waste mixtures, the media of occurrence, interface zones between media, and critical parameters for decontamination (e.g., chemical chemistry, soil types, porosity);
4. hydrogeologic factors (e.g., depth to groundwater, hydraulic gradients, hydraulic conductivity; proximity to residential wells, flood plains, and wetlands);
5. climate and water table fluctuation (e.g., precipitation, run-off, stream flow, water budget);
6. routes of exposure and receptors;
7. populations and environmental concerns, including biological communities and habitats on or potentially affected by the Site;
8. extent to which the hazardous substances have migrated or are expected to migrate from their original location;
9. extent to which buildings, foundations, or other underground structures contain or overlie hazardous substances or contaminant plumes and the potential for decontaminating them;
10. contribution to the contamination of air, land, water, and the food chain;
11. surface water classifications and existing use designations;

12. groundwater characteristics and current and potential groundwater uses (e.g., characteristics related to the groundwater classes described in the Ground Water Protection Strategy, (EPA, 1984));
13. extent to which contamination levels exceed health-based levels prompting a necessary response action;
14. waste characteristics that affect the type of treatment possible (e.g., BTU values, pH, BOD);
15. extent to which substances at the Site may be reused or recycled;
16. potential extent and risk of future releases of substances or residuals remaining onsite;
17. physical characteristics of the Site, including important surface features, soils, geology, hydrogeology, meteorology, and ecology;
18. characteristics or classifications of air, surface water, and ground water;
19. general characteristics of the waste, including quantities, type, phase, concentration, toxicity, propensity to bioaccumulate, persistence, and mobility;
20. extent to which the source can be adequately identified and characterized;
21. actual and potential exposure pathways through environmental media;
22. actual and potential exposure routes, for example, inhalation and ingestion;
23. other factors, such as sensitive populations, that pertain to the characterization of the Site or support the analysis of potential remedial action alternatives; and
24. characterization of possible site-specific source areas, including but not limited to the buried lagoon, and the culvert discharge.

Using this information, the Settling Parties shall further define the boundaries of the RI/FS study area by identifying and characterizing all source areas and determining the extent of existing contaminants and of environmental effects resulting from releases from the Site. The Site characterization shall provide information sufficient to refine the preliminary identification of potentially feasible remedial technologies,

ARARs, and the data needed by EPA to perform the Baseline Risk Assessment.

II. WORK PLAN REQUIREMENTS

The Site characterization shall specifically consist of the activities and deliverables described in this section (Section 3).

For each component of the site characterization, the Settling Parties shall establish, at a minimum, and include in the Work Plan for the RI/FS the following:

1. a grid for the soil sampling program, and identification of proposed sampling locations for all other media on the developed Site map;
2. a description of the locations of suspected contaminated areas and the areas considered to represent background levels;
3. an anticipated number or schedule of samples, subject to the results of field activities;
4. quality assurance/quality control procedures, including blanks, duplicates, alternative analysis conditions, and standards;
5. a method for determining how the field program shall be adjusted according to the initial sampling results; and
6. the analytical methodology to be used for each medium including instrumentation and detection limits.

III. SCHEDULE/DELIVERABLES

Settling Parties shall initiate the site characterization study upon EPA's notification to proceed. In planning the work, the Settling Parties shall provide, for EPA's review, proposed deviations from the procedures in the work plan before making changes in the field.

An Initial Site Characterization Report which meets the reporting requirements in this section, shall be submitted consistent with the schedule (Table 1 of this document).

IV. COMPONENTS OF THE SITE CHARACTERIZATION

A. Site Survey

The Settling Parties shall use the base maps prepared for the Limited Field Investigation (Section 2.II) to display survey data collected at the Site. The maps shall contain all standard topographic, physiographic, cultural, and facility features, the surveyed locations of all wells (including residential wells), and surface sampling locations. The Settling Parties shall provide to EPA and Vermont copies of deeds used during the survey and survey field team notes.

The Settling Parties shall prepare maps of smaller scale that show offsite sampling locations and the courses of contaminants. The basis of one of these maps shall be the U.S. Geological Survey 7.5-minute quadrangle which includes the Site.

The Settling Parties shall determine the elevations and horizontal locations of all wells, piezometer, and other sampling locations. It may be necessary to extend the Site map based on the results of the Site characterization. The Site map shall encompass an area large enough to show all pathways of surface water run-off from the Site. The Site survey shall be of sufficient detail for explanations of areas into which contaminants may migrate.

B. Soils and Sources of Contaminants

1. Objectives

To assess sources of contamination at the site, the Settling Parties shall determine the following, at a minimum:

- a. the nature and concentration of each contaminant in the shallow subsurface particularly in currently known potential source areas at the Site;
- b. the mode of existence of the contaminants, whether as free products or chemical complexes (e.g., dissolved in ground water, adsorbed by grains);
- c. the critical parameters for each soil and rock type and layer that is contaminated (e.g., soil moisture, soil profile, soil type, density, porosity, grain size distribution). This information shall be reported on charts, maps, and cross sections;
- d. the waste characteristics and mixtures that affect the type of treatment possible. All pertinent physical and chemical characteristics of each compound shall be reported in a chart;

- e. the extent to which the contaminants may be recycled;
- f. the background levels for each soil type and stratum at a sufficient number of upgradient locations;
- g. the physical limitations and other materials handling aspects of the soil and other sources that are contaminated; and
- h. the estimated volumes of soils and other sources that are contaminated for a range of contaminant levels.

2. Work Plan Requirements

The detailed plan for the investigation of soils and contaminant sources shall be part of the FSP. The plan shall describe and justify the approximate numbers and locations of borings, samples, and other investigative methods, as necessary. The plan shall also provide for the additional sampling and analysis needed to fulfill the objectives listed previously.

3. Reporting Requirements

The onsite sampling work shall be sufficient to support, at a minimum, the following analyses which shall be performed by the Settling Parties:

- a. a characterization of the vertical and horizontal extent of contamination by sampling, based on a range of potential clean-up levels. Contamination shall be determined such that a remedy can be selected for the site and bounded by sampling points yielding non-detect or background concentrations to the extent practicable. Analysis shall be supported by isocon maps, area calculations, and volume calculations;
- b. an identification and verification of all contaminated source areas on the Site;
- c. a "short list" of indicator compounds (i.e., due to their relative frequency of occurrence, toxicity, persistence, concentration, mobility, etc.) that are expected to create a significant potential hazard to human health or the environment or as related to treatability;
- d. a review of the data to determine if further sampling and analysis are needed to accomplish the goals of the investigations;

- e. a determination of the background levels of chemicals for each soil type and stratum based on sampling at a sufficient number of locations;
- f. enough data on soil characteristics to understand the requirements of onsite materials handling and pretreatment so that complete and accurate cost estimates can be developed for the evaluation of remedial alternatives;
- g. an estimate of the volumes of contaminated soils;
- h. an estimate of present contamination levels for soil at points of potential exposure;
- i. an estimate of the volume and significance of (temporary) storage of waste on the flood plain;
- j. an estimate of the amount of contact of ground water with contaminated soil;
- k. an estimate in quantitative terms of the impacts on wetlands; and
- l. the impact of water level changes related to Site drainage and pumping.

Techniques that may be used to identify and delineate sources are test pits and geophysical techniques such as ground-penetrating radar and magnetic surveys. When such geophysical techniques are used, results shall be verified by soil and rock borings. For geophysical investigations, the Initial Site Characterization Report shall include maps that fully delineate anomalies and explain the results.

Results of the source determination study shall be presented in maps, cross sections, charts, tables, and computer data bases, as appropriate. Based on the definition of initial soil sampling, the possible need for additional sampling and analysis shall be specified. The analysis of data shall be sufficient to map the sources, to show the vertical and horizontal extent of contaminant concentrations, and to estimate accurately the volumes of soil. Parameters needed to evaluate the residual concentrations, characteristics, and behaviors of contaminants shall also be evaluated.

C. Subsurface and Hydrogeological Investigations

1. Objectives

The Settling Parties shall plan, conduct, and report subsurface and hydrogeological investigations sufficient to characterize and/or describe, at a minimum, the following:

- a. the nature and extent of contamination sufficiently to define the boundaries of all contaminant plumes and to quantify in three dimensions every aquifer, including bedrock;
- b. a quantitative estimate of the number of years necessary to achieve clean-up goals for groundwater extraction and treatment remedial alternatives;
- c. the subsurface stratigraphy and structure, for each rock and soil type including, but not limited to, lithologies, grain sizes, sorting, permeability, fracturing (orientation, frequency, and effects), plasticity index, moisture content, dry density, and mineralogy;
- d. the concentration, environmental fate, transport mechanisms, and other significant characteristics of each contaminant;
- e. the waste mixtures and partitioning of contaminants between groundwater and soil or rock, and determine the phases, including their partitioning coefficients;
- f. a quantification of the hydrogeological factors (e.g., in situ permeability, conductivity, and storage capacity of each soil and rock type; depth of saturated zone; hydraulic and pressure gradients);
- g. the routes of groundwater migration, transport rates, and receptors. Also specifically determine the locations, flow rates, contaminant concentrations, and variability for discharge to bodies of surface water;
- h. the seasonal fluctuations in the water table, flow gradients, and contaminant concentrations, simultaneously with other factors such as precipitation, run-off, and stream flow;
- i. the condition of existing monitoring wells and the need to replace them or a portion of their installation materials;

- j. the construction, location, and proximity, of residential, municipal, and previously installed monitoring wells;
- k. the populations and environments at risk;
- l. the extent to which the hazardous substances will migrate once the limits of plumes are determined (if modeling studies are involved, the parameters, assumptions, accuracy, contingencies of the studies must be explicitly stated, and a plan established to verify the modeling if a significant risk is indicated for a specific population or environment);
- m. a review and illustration of groundwater classifications (the need for institutional controls on ground-water use, considering such controls as adjuncts to remedial action, must be assessed);
- n. all physical and chemical waste characteristics that may affect the possible type of treatment
- o. the potential risks associated with future releases resulting from onsite residuals;
- p. the background levels for ground water at a sufficient number of horizontal and vertical locations, including unconsolidated overburden and bedrock; and
- q. engineering properties of soils and wastes for settlement and slope stability analyses if capping is considered.

2. Work Plan Requirements

The Settling Parties shall design investigations that are sufficient to fully address the objectives listed above for the RI/FS. The plan for the subsurface and hydrogeological investigations shall be presented in the FSP. The FSP shall also describe the locations, methods, field forms, procedures, and types of analyses to be used in performing the subsurface and hydrogeological investigations. This description shall include specific drilling methods and protocol to be used. Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites, the Ground Water Technical Enforcement Guidance Document (OSWER Directive 9950, Sept. 1986) and the Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites (OSWER Dir. 9283.1-2 Final Review Draft, EPA, August 1988) shall provide the framework of these investigations. The plan

shall clearly show the relations between the objectives and the studies to be performed (see Sections 1 and 3). The plan shall provide for EPA review of deviations from the Work Plan procedures due to unforeseen field conditions. The plan shall allow additional work contingent on the results of the studies described in the Work Plan for the RI/FS.

3. Reporting Requirements

For the subsurface and hydrogeological investigations, the Settling Parties shall present the results and describe the actual procedures, including when the actual procedures differ from those in the work plan, in a section of the Initial Site Characterization Report. The section shall contain all data, analyses, maps, cross sections, and charts necessary to meet the objectives for which the investigations were performed. Illustrations shall clearly identify the data points, values, and the degree of interpolation or extrapolation necessary to draw conclusions.

D. Air Quality Assessment

1. Objectives

The results of the air quality assessment performed during the LFI shall be submitted to EPA for review as part of the RI/FS Work Plan. Should the air monitoring conducted during the LFI indicate potential impacts to public health and the environment or alternatively, should air monitoring not be sufficient to characterize potential risks associated with exposure to contaminants via the air pathway, the Settling Parties will conduct the following activities during Phase IA:

- a. identification of all point and area emissions of particulate, volatiles, and semi-volatiles for the existing Site, including volatilization from soil, leachate, contaminated water, waste piles, and other contaminant areas;
- b. determination of background levels at a sufficient number of upgradient and upwind locations;
- c. characterization of emissions as indicated above (i.e., particulate, vapors, precipitates, and gases), and identify the compounds, chemicals, and other complexes of concern;

- d. estimation of the emission rates and worst case impacts on and off-site for the existing Site (detailed techniques for the characterizing of air emissions and impacts shall be used if screening data indicate a potentially significant concentration);
- e. supplementation of ambient air monitoring with the collection of meteorological data including ambient temperature, wind speed, wind direction, and barometric pressure;
- f. provision for monitoring of ambient air quality as described in plans that shall include a description of (a) the sampling methodology (including instrumentation, sampling times, locations, detection limits, QA/QC procedures) and (b) the analytical methodology including instrumentation, detection limits and QA/QC procedures;
- g. provision for modeling for potential emission sources, including documentation of (a) source characteristics (e.g., emission rates, release height, velocity, temperature, source configuration, etc.), (b) meteorological conditions, (c) receptor locations, and (d) background concentrations;
- h. evaluation of the factors that are critical in characterizing the nature and extent of airborne contaminants from the Site, such as background air quality;

2. Work Plan Requirements

The Settling Parties shall prepare a plan for the air quality assessment during the scoping of the RI/FS. This plan shall become part of the FSP. Most aspects of the plan shall be performed during the Initial Site Characterization. As early as possible in the RI/FS, the Settling Parties shall gather data on the factors critical to assessing impacts on air quality. The plan shall allow EPA to review differences between the specifications for the field work and the actual field work.

3. Reporting Requirements

The results of the air quality assessment shall be submitted to EPA for review as part of the Initial Site Characterization Report. Some of the monitoring work shall continue throughout the RI/FS. The Settling Parties shall address the control of gaseous emissions, including

fugitive emissions (e.g., control by minimizing interfaces between soil and air and between soil and water).

E. Surface Water and Sediments

1. Objectives

The Settling Parties shall determine the nature and extent of contamination, associated with releases if any, of contaminants from the Site to surface water bodies that could be impacted including but not limited to Hewitt Brook. Among the areas of primary concern are the impacts of the Site on Hewitt Brook and Houghton Lane.

The Settling Parties shall determine the nature and extent of contaminants in the water and sediments of surface drainage areas, both perennial and intermittent, potentially affected by contaminants from the Site. Upgradient samples of water and sediment shall be collected (and analyzed) from several locations in each surface water flow path that may be affected by contaminants at the Site. The collection and analysis of the upgradient samples shall be sufficient to determine background concentrations of analytical parameters. Sampling schedules shall include the monitoring of seasonal changes, including low flow periods, and shall conform to the procedures and requirements of the Project Operations Plan (Section 2).

2. Work Plan Requirements

The Settling Parties shall prepare a plan for surface water and sediment sampling during the scoping of the RI/FS. This plan shall be part of the FSP. It shall contain provisions for more general assessments of wetlands, streams, and lakes if this work is needed. The plan shall allow for EPA's review of proposed differences between the actual field work and the specifications for the field work.

3. Reporting Requirements

The surface water and sediment sampling data shall be compiled and presented in the Initial Site Characterization Report and shall include tables, graphs, charts, and other visual aids, as appropriate. These illustrations shall indicate the static levels and seasonal fluctuations of water levels and the impacts of those changes on contaminant concentration and migration.

F. Ecological Assessment

1. Objectives

The Settling Parties shall conduct an ecological assessment to determine the nature and extent of the effects of contamination to the ecological resources on, nearby, or otherwise influenced by the Site. A reference site may be required by EPA to be designated and sampled for use in determining the impact of the Site on the ecological receptors. The extent of the area to be studied shall be determined by the results of the Site Characterization, and upon the collection and review of available information concerning the biota expected to occur on or near the Site as either resident or transient species.

At a minimum, a qualitative study shall be conducted to determine the basic environmental characteristics at the Site, and to identify and characterize ecological communities, habitat types, and species, which are present on or surrounding the Site. The assessment shall also include a discussion of the potential exposure pathways based upon the Site Characterization, combined with the qualitative study. If necessary, further qualitative or quantitative assessments, bioassays, or tissue sampling may be required to support an ecological risk assessment, or to better determine the actual impact of the Site on the environment. A discussion of the impacts of proposed remedial alternatives shall be included.

Specific attention shall be placed on the Section 404(b)(1) Guidelines of the Clean Water Act regarding wetlands. Specifically, Executive Order 11990 "Protection of Wetlands", May 24, 1977, concerns all impacts to wetlands and Executive Order 11988 "Floodplain Management" is involved where actions are to be evaluated in regard to projects which may impact a floodplain.

2. Work Plan Requirements

The Settling Parties shall submit a plan for an ecological assessment as part of the FSP. This plan shall contain an evaluation of the applicability of the following elements, and a plan to implement those elements determined to be applicable:

- a. i) an accurate delineation of the wetland boundary using the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (USGPO 024-010-00683-8), and classification of the wetland types using the Classification of Wetlands and Deepwater Habitats of the United States (FWS/OBS-79/31, US Fish

and Wildlife Service, 1979) and determination of the functions and values of the wetland;

ii) an accurate description and delineation of the ten year and hundred year floodplain;

- b. a description of all habitat types including a list of plant and animal species, both resident and transient;
- c. a determination of the status of those species identified in terms of sport or commercial usage, protected status, endangered, threatened, or of special concern;
- d. sampling of environmental receptors for analysis of community composition, abundance, or body burden of contaminants;
- e. sampling of chemical and physical parameters (e.g., grain size, total organic carbon, dissolved oxygen, etc.);
- f. toxicity testing of indicator species to determine acute and chronic effects of contaminated media on the environment;
- g. an evaluation of how the contamination from the Site has affected the receptors, including a discussion of fate and transport of the contaminants to the various habitat types or organisms;
- h. an evaluation of whether contamination has affected the health of the wetland (e.g., reduced plant growth or vigor or contributed contaminants to the food web); and
- i. a discussion of how each remedial alternative under consideration affects the wetland, biota, and their functions and values.

G. Treatability and Pilot Studies

1. Objectives

The objective of the treatability and pilot studies is to obtain the information necessary to evaluate the effectiveness of potential remedial treatment technologies. The Settling Parties shall conduct laboratory-scale simulations of treatment processes to evaluate the treatability of contaminated ground water, surface water, soils, and other environmental media if necessary. In any treatability and/or pilot studies, the

Settling Parties shall evaluate treatment options, including biological treatments, physical separation, chemical conditioning, and in situ treatments.

Before dynamic modeling, bench-scale tests may be performed to establish the "preliminary" treatability of contaminated media. Through the bench-scale tests, the Settling Parties may initially evaluate the applicability of treatments. Treatability studies, if necessary, to determine the most effective technologies to remediate the contaminant plume and protect the public water supplies shall be initiated as early as possible but no later than the Post Screening Field Investigation (Phase 2 RI, Phase 2 FS).

The treatability studies may be conducted anytime during the RI upon approval of EPA. EPA may require treatability or pilot studies at any time during the RI/FS.

2. Work Plan Requirements

The Settling Parties shall prepare a work plan for the treatability and pilot studies if necessary. A Treatability Study Work Plan shall be submitted to EPA for approval prior to the performance of treatability and pilot studies or upon the request of EPA. The Treatability Study Work Plan must clearly define the purpose of the study and include a detailed test plan including drawings and a step-by-step procedure, if applicable.

3. Reporting Requirements

Results of treatability and pilot studies shall be submitted to EPA in the form of a report describing methods, analyses, and results.

V. PHASE 1A DELIVERABLES

A. Initial Site Characterization Report

The Settling Parties shall submit an Initial Site Characterization Report as a Phase 1A Deliverable.

The Initial Site Characterization Report shall include the methods, data gathered and analyses of results. The Settling Parties shall evaluate how well the studies satisfy the objectives of the RI/FS (Section 1), the site characterization (Section 3), and the objectives stated in each study description (Subsections 3.IV.A.-3.IV.H.). The report shall also explain differences between the actual

field work and the work specified by Work Plans for the RI/FS. Deficiencies in satisfying the objectives shall be clearly stated. Compilations of data shall be presented in formats that can accommodate the results of additional studies. The Settling Parties shall provide data compilations on computer data bases that are compatible with those used by EPA Region I to the extent practicable. The Settling Parties shall work closely with EPA during the development of the data bases.

B. Long-term Monitoring Work Plan

1. Objectives

Long-term-monitoring and sampling shall commence following the completion of the Initial Site Characterization Report and continue to the issuance of the ROD. Based on the results of the Limited Field Investigation and the Site Characterization Report, the Settling Parties shall monitor the appropriate media to assess changes in Site conditions. Analytical data obtained as part of the long-term monitoring will be provided as an appendix to the Draft RI.

2. Work Plan Requirements

The Settling Parties shall submit a plan for periodically sampling and monitoring on a long-term basis to satisfy the objectives specified above.

The plan shall include a discussion of the statistical and mathematical techniques to be used in comparing the results of each sampling round to previous sampling results. The plan shall be consistent with the procedures and requirements established in the Project Operations Plan (Section 2), the overall objectives (Section 1), and the other components of the site characterization (Section 3). The plan shall also allow EPA review before deviating from the original work plan specifications for field work.

3. Reporting Requirements

Results shall be presented after the sampling and in accordance with the procedures described in the Project Operations Plan (Section 2). Results of each round of sampling shall be statistically and mathematically compared with results of previous rounds. Deviations and trends shall be illustrated and explained. Analysis and data will be submitted as an appendix to the Draft RI report.

C. Phase 1B Work Plan

The Settling Parties shall submit a Phase 1B Work Plan as a Phase 1A deliverable, if such a Work Plan is necessary.

The results of the Phase 1A Field Investigation, may indicate the need for additional information through further investigatory activities. The Settling Parties shall prepare a Phase 1B Work Plan that describes the investigations to be implemented and the data to be obtained. The Settling Parties shall submit the Work Plan to EPA for review as a Phase 1A Deliverable, and shall perform the necessary studies after receiving a notice to proceed with Phase 1B Field Work by EPA. The Phase 1B Work Plan shall be scoped to meet all field data collection objectives of the RI/FS (Section 1), be consistent with the procedures in the Project Operations Plan (Section 2), and fulfill the requirements of the Site characterization (Section 3).

SECTION 4: PHASE 1B FIELD WORK AND PHASE 1 FS

I. OBJECTIVES

The Initial Site Characterization and the Phase 1B Field Work, if necessary, shall be used to fulfill the requirements of the following deliverables:

1. Draft Remedial Investigation Report;
2. Development and Initial Screening of Alternatives Technical Memo and;
3. Post-Screening Field Investigation Work Plan (if necessary);
4. Draft Feasibility Study Report.

The Phase 1B Field Work is the second set of field investigations to address data gaps that may be exposed in the Phase 1A Field Investigation. Further data requirements from Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites EPA/540/P-91/001 OSWER Directive 9355.3-11, February 1991 Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), the National Contingency Plan, and the previous three sections of this Statement of Work shall provide the focus for the studies.

II. REMEDIAL ACTION ALTERNATIVE DEVELOPMENT

A. Overview

The Settling Parties shall develop an appropriate range of waste management options in a manner consistent with the National Contingency Plan (NCP) (40 CFR Part 300), Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites EPA/540/P-91/001, OSWER Directive 9355.3-11, February 1991 the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (OSWER Directive 9355.3-01), and guidance provided by Region 1 EPA. Alternatives for remediation shall be developed by identifying and screening technologies and then assembling combinations of technologies (including innovative ones) and the media to which they would be applied, into alternatives that address contamination at the Site or for an identified operable unit.

1. Technology Screening and Alternative Development

The Settling Parties shall perform, at a minimum, the following activities so that alternatives can be developed for detailed analysis:

- a. development of remedial action objectives specifying the contaminants and media of concern, potential exposure pathways, and preliminary remediation goals that are based on chemical specific ARARs, EPA risk assessments, and Site characterization data;
- b. development of response actions for each media of interest defining engineering controls, treatment, excavation, pumping, or other actions, separately and in combinations;
- c. identification of volumes or areas of media to which response actions shall apply;
- d. identification and screening of technologies, including innovative ones, that would be applicable to each response action;
- e. identification and evaluation of technology process options;
- f. assembly of the selected technologies into alternatives representing a range of treatment and containment options; and
- g. identification and evaluation of all the handling, treatment, and final disposal of all treatment residuals (e.g., ash, decontaminated soil, sludge, decontamination fluids).

2. Objectives of Remedial Action Alternatives

Alternatives shall be developed that:

- a. protect human health and the environment by recycling waste or by, eliminating, reducing, and/or controlling risks to human health and the environment posed through each pathway at the Site;
- b. consider the long-term uncertainties associated with land disposal;
- c. consider the goals, objectives, and requirements of the Solid Waste Disposal Act;

- d. consider the persistence, toxicity, mobility, and propensity to bioaccumulate of hazardous substances and their constituents;
- e. consider the short and long term potential for human exposure;
- f. consider the potential threat to human health and the environment if the remedial alternative proposed was to fail; and
- g. consider the threat to human health and the environment associated with the excavation, transportation, and redisposal or containment of contaminated substances and/or media.

B. Initial Screening of Alternatives

1. Criteria

In screening the alternatives, the Settling Parties shall consider, but not be limited to, the short and long term aspects of the following three criteria:

Effectiveness. This criterion focuses on the degree to which an alternative reduces toxicity, mobility, or volume through treatment; minimizes residual risks and affords long term protection; complies with ARARs, and minimizes short-term impacts. It also focuses on how quickly the alternative achieves protection with a minimum of short term impact in comparison to how quickly the protection shall be achieved.

Implementability. This criterion focuses on the technical feasibility and availability of the technologies that each alternative would employ and the administrative feasibility of implementing the alternative.

Cost. The costs of construction and any long-term costs to operate and maintain the alternatives shall be considered.

2. Range of Alternatives

The Settling Parties shall develop a series of alternatives for the site based on the Initial Site Characterization and Phase 1B Field Work, if necessary, that may include, but not limited to, the following:

- a. An alternative that throughout the entire soil, source, and/or groundwater plume reduces the contaminant concentrations to meet or exceed all MCLs, ARARs, and a 10^{-6} excess cancer risk. It shall achieve this objective as rapidly as possible and must be completed in less than ten (10) years and shall require no long term maintenance.
- b. A no action alternative that would rely solely upon natural attenuation to meet clean-up standards. This may be "no further action", if some removal or remedial action has already occurred at the Site.
- c. For source control actions, as appropriate:
 - i. A range of alternatives in which treatment that reduces the toxicity, mobility, or volume of the hazardous substances, pollutants, or contaminants is a principal element. As appropriate, this range shall include an alternative that removes or destroys hazardous substances, pollutants, or contaminants to the maximum extent feasible, eliminating or minimizing, to the degree possible, the need for long-term management. The respondents also shall develop, as appropriate, other alternatives which, at a minimum, treat the principal threats posed by the Site but vary in the degree of treatment employed and the quantities and characteristics of the treatment residuals and untreated waste that must be managed; and
 - ii. One or more alternatives that involve little or no treatment, but provide protection of human health and the environment primarily by preventing or controlling exposure to hazardous substances, pollutants, or contaminants through engineering controls, for example, containment, and, as necessary, institutional controls to protect human health and the environment and to assure continued effectiveness of the response action.
- d. For groundwater response actions, the Settling Parties shall develop a limited number of remedial alternatives that attain site-specific remediation levels within different restoration time periods utilizing one or more different technologies if they offer the potential for comparable or superior performance or implementability; fewer or lesser adverse impacts than others available approached; or

lower costs for similar levels of performance than demonstrated treatment technologies.

The Settling Parties shall give special consideration to innovative technologies. If feasible, one or more such technologies may be evaluated beyond the initial screening.

An alternative that involves no need for long-term maintenance and the no action alternative shall be carried through the development and screening and shall be analyzed during the Detailed Analysis of Alternative (Figure 1).

C. Reporting

All alternatives shall be presented in the Development and Initial Screening Technical Memo. If an alternative is to be eliminated it must be screened out for clearly stated reasons contained in the NCP (40 CFR Part 300) and other EPA guidances, including, but not limited to, Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites, EPA/540/P-91/001, OSWER Directive 9355.3-11, February 1991 and Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988).

III. PHASE 1B DELIVERABLES

A. Development and Initial Screening of Alternatives Technical Memo

A Development and Initial Screening of Alternatives Technical Memo shall be submitted to EPA (Figure 1) for review as a Phase 1B deliverable. The report shall contain a chart of all alternatives and a concise analysis of the basic factors described in Section 4,II. The memo shall justify deleting, refining, or adding alternatives.

The respondents shall submit a work plan as part of the Technical Memo. This work plan shall describe the methods by which the Settling Parties will evaluate the potential remedial alternatives. It shall also be consistent with the National Contingency Plan, Section 5.0 of this SOW, and shall consider the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988).

B. Draft RI

A Draft Remedial Investigation Report (Draft RI) shall be prepared by the Settling Parties and submitted to EPA for review as a Phase 1B deliverable. The Draft RI shall describe and display in appropriate maps, tables, and figures, any results from the pre RI/FS sampling, the Phase 1A and Phase 1B Field Investigations and parallel samples taken by EPA or Vermont available to the Settling Parties. The Draft RI shall include a Site Characterization Report which shall consider, and if appropriately valid, use all available pre-RI/FS, Phase 1A, Phase 1B, and government field sample results. The Draft RI shall meet the requirements and objectives of the National Contingency Plan, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites (EPA/540/P-91/001, OSWER Directive 9355.3-11, February 1991), and Sections 1, 2, 3, and 4 of this Statement of Work.

C. Work Plans

1. Post-Screening Field Investigation Work Plan

A Post-Screening Field Investigation Work Plan shall also be prepared by the Settling Parties and submitted to EPA for review as a Phase 2B deliverable if necessary. Alternatives, particularly those involving innovative technologies, may require additional field investigations to obtain data needed for the further evaluation of Site characteristics and the detailed analysis of alternatives. The Post-Screening Field Investigation Work Plan (Phase 2 RI) shall include, but not be limited to:

- a. supplemental literature searches to obtain additional data on treatment technologies;
- b. bench and pilot scale treatability tests if necessary; and
- c. the collection of additional field data to assess further the characteristics of the Site.

The Post-Screening Field Investigation Work Plan shall conform to the objectives, procedures, and methods described in Sections 1-4 of the Statement of Work. The investigations shall include the collection of data needed to evaluate the effectiveness of the remedial alternatives, conceptually design remedial actions, select

a remedy, and sign a record of decision. In the Post-Screening Field Investigation Work Plan the Settling Parties shall describe the methods and procedures to be followed to perform field investigations necessary to fill the remaining data gaps. If the Settling Parties believe that no further field investigations are necessary, they must provide an explanation of how the previous studies fulfilled all of the data objectives and requirements of the National Contingency Plan and the Statement of Work. The EPA shall have the final authority to determine if further field investigations are necessary.

SECTION 5: POST-SCREENING FIELD INVESTIGATION

I. OBJECTIVES

The purpose and objective of this phase is to provide for the information required to fill all relevant data gaps and to provide information necessary to perform the Detailed Analysis of Alternatives and the preparation of the first draft RI/FS. This may include, but not be limited to, bench and pilot studies of potential technologies, literature searches, and field investigations. Field investigations may be performed by the Settling Parties, if information relevant to the selection of a remedial action alternative is not sufficient to perform a Detailed Analysis of Alternatives that shall result in a remedy consistent with the National Contingency Plan.

II. DETAILED ANALYSIS OF ALTERNATIVES

A. Analysis

The detailed analysis of alternatives consists of an assessment of individual alternatives against each of the nine (9) evaluation criteria and a comparative analysis that focuses upon the relative performance of each alternative against those criteria. The analysis shall be consistent with the National Contingency Plan (NCP) (40 CFR Part 300) and shall consider EPA guidance including Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites (EPA/540/P-91/001, OSWER Directive 9355.3-11, February, 1991) the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (OSWER Directive 9355.3-01). The nine criteria are as follows:

1. Overall protection of human health and the environment
2. Compliance with ARARs
3. Long term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short term effectiveness
6. Implementability
7. Cost
8. State Acceptance
9. Community Acceptance

Criteria one (1) and two (2) from the above list are considered threshold criteria. This means that an alternative must meet these two criteria or must contain a statutory basis for waiving compliance with specific ARARs

in order for it to be eligible for selection. Criteria three (3) through seven (7) on the above list are considered primary balancing criteria. These five criteria are used to further evaluate alternatives that satisfy the threshold criteria. The final two criteria, state acceptance and community acceptance, are modifying criteria that shall be considered by EPA in remedy selections.

B. Reporting

The Detailed Analysis of Alternatives, which shall be presented in the DRAFT FS, shall contain the following:

1. further definition of each alternative with respect to the volumes or areas of contaminated media to be addressed, the technologies to be used, and any performance requirements associated with those technologies;
2. a process scheme for each alternative which describes how each process stream, waste stream, emission residual, or treatment product shall be handled, treated and/or disposed;
3. an assessment and a summary profile of each alternative against the nine evaluation criteria; and
4. a comparative analysis among the alternatives to assess the relative performance of each alternative with respect to each evaluation criterion.

III. DELIVERABLES FROM POST-SCREENING FIELD INVESTIGATIONS

A. Draft RI/FS

Settling Parties shall submit a complete Draft Remedial Investigation/Feasibility Study to EPA for review after completing the Post-Screening Field Investigation. This and any subsequent drafts of the RI/FS shall conform to the NCP (40 CFR Part 300), Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites (EPA/540/P-91/001, OSWER Directive 9355.3-11, February 1991), the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988), and any additional format, guidance, or examples provided by EPA. The FS section shall include a chart that delineates each criteria listed in Section 5.II. for each alternative. Other graphics shall be included that

allow for comparisons of multiple alternatives at various risk, cost, and clean-up levels of soil, sediment, or water. These may include but are not limited to graphs of the cost of potential remediation alternatives plotted against a range of soil clean-up levels; graphs of soil/sediment/waste volumes plotted against a range of soil clean-up volumes; and projected ground water and surface water concentrations plotted against time for ground water and surface water alternatives. The Settling Parties shall compare the alternatives by using the listed criteria and other appropriate criteria consistent with the National Contingency Plan and all previous Sections of this Statement of Work.

B. Work Plan

If EPA or the Settling Parties deem that additional studies are needed, the Settling Parties shall submit a work plan for approval by EPA, and perform the studies consistent with an EPA approved work plan.

**SECTION 6: ADDITIONAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY
DRAFTS, REVIEWS, AND REVISIONS**

Following EPA comments on the First Draft RI/FS, the Settling Parties shall prepare a Second Draft RI/FS which addresses EPA comments and requested changes. Depending on Site conditions, the acceptability of the latest Draft RI/FS, or other conditions, EPA may request additional draft RI/FS's until a Draft RI/FS is produced which EPA determines is satisfactory for public comment.

The Final Draft Remedial Investigation/Feasibility Study shall be submitted for public comment by EPA. After the public comment period, EPA may refer the FS Report back to the Settling Parties for revision as provided in Paragraph 43 of the Consent Order.